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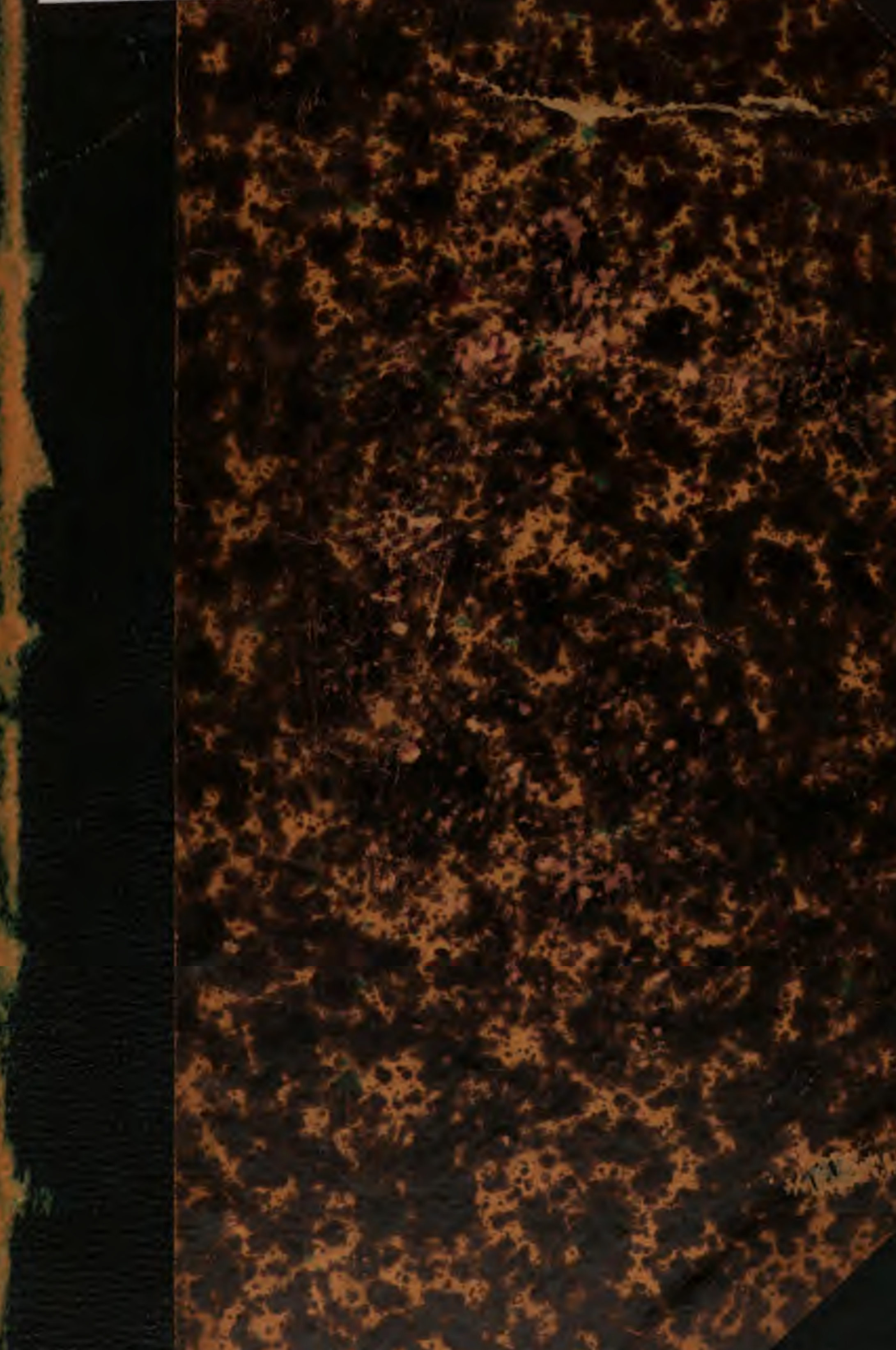

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AMERICAN

JOURNAL OF PHOTOGRAPHY.

JULIUS F. SACHSE, EDITOR.
THOS. H. McCOLLIN, MANAGING EDITOR.

VOLUME XI.

1890.

PHILADELPHIA:
THOMAS H. McCOLLIN & CO., PUBLISHERS,
NO. 1030 ARCH STREET.

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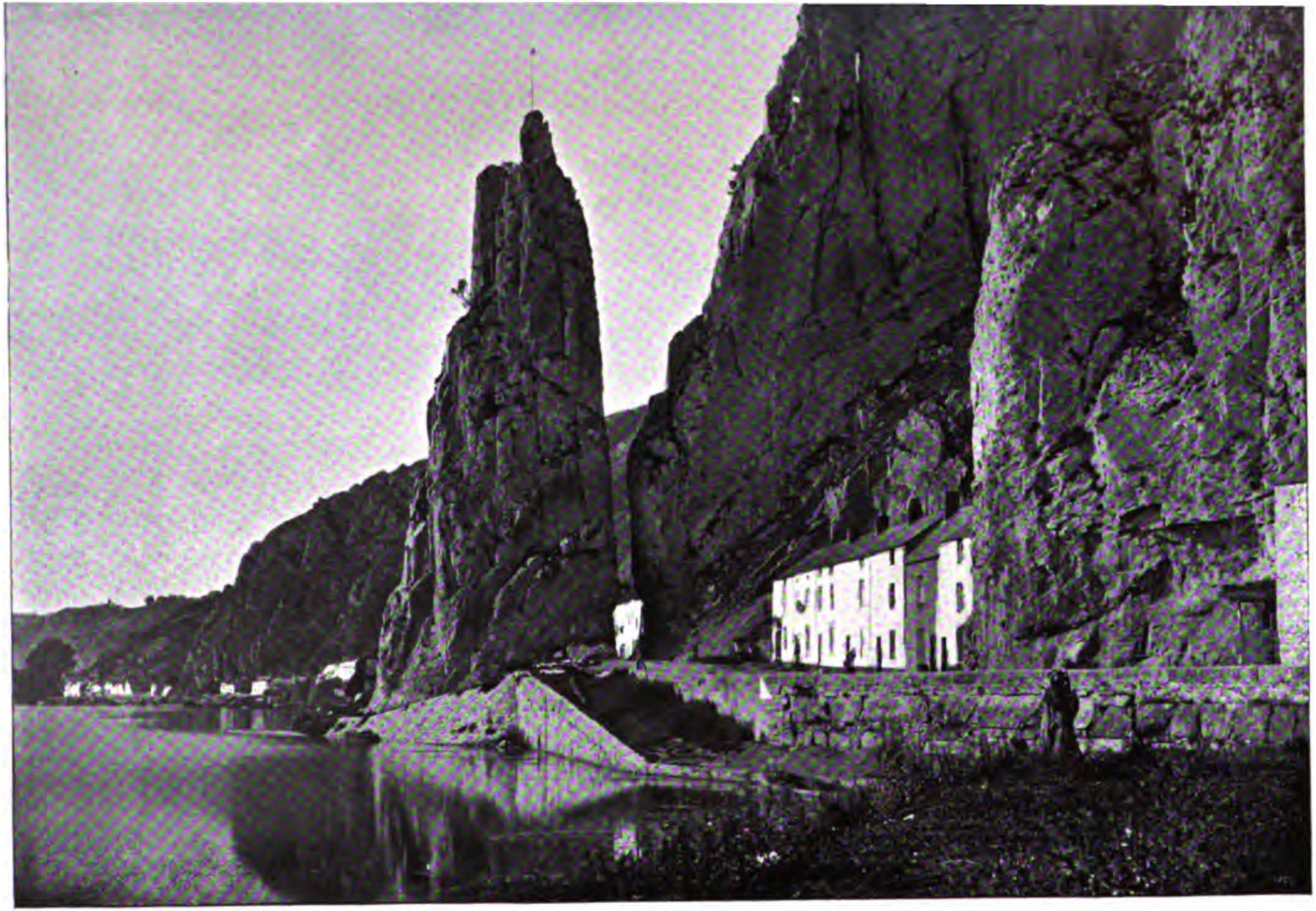

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STOPS OR DIAPHRAGMS.

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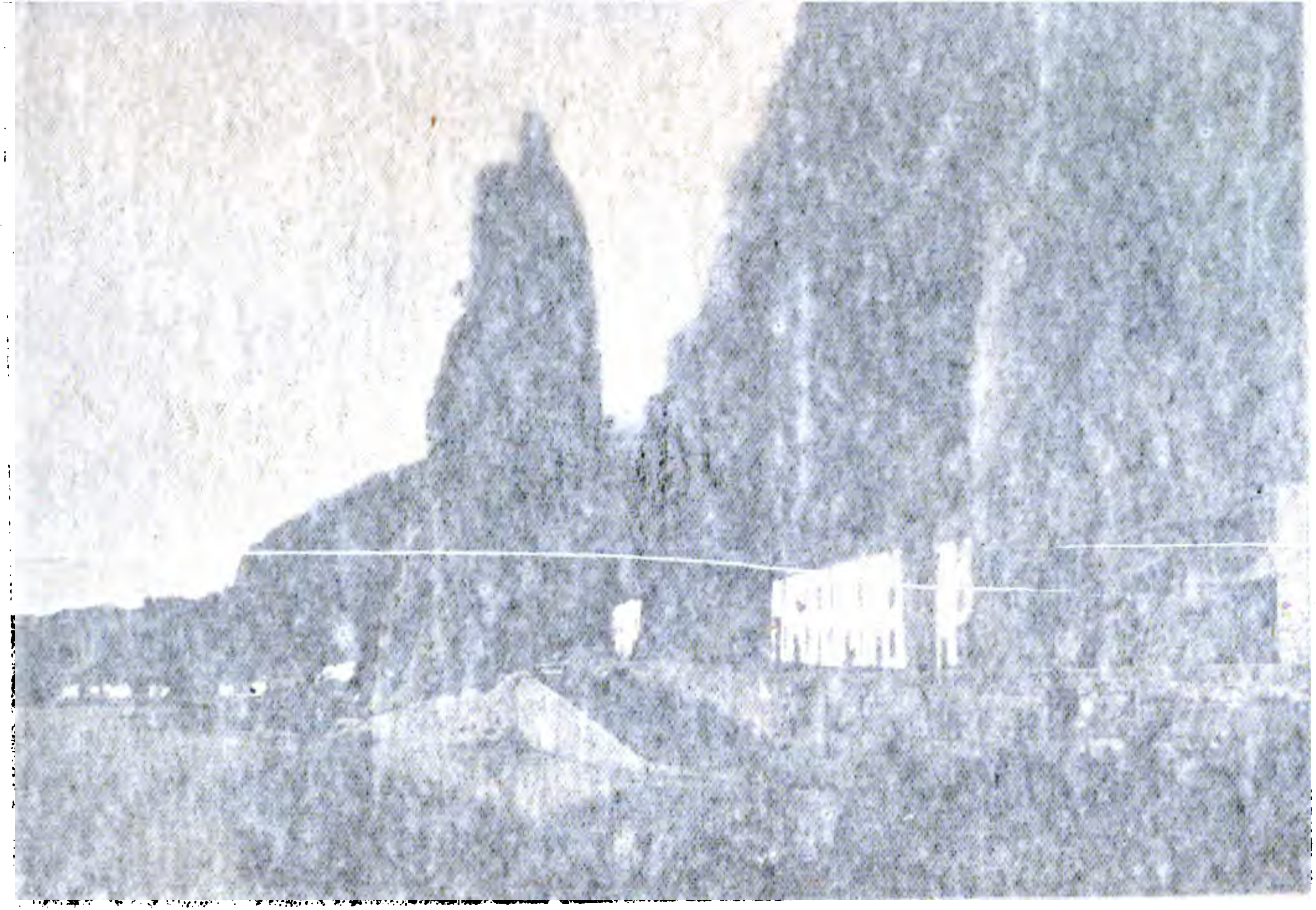

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OF ARTS AND SCIENCES.

AMERICAN
JOURNAL OF PHOTOGRAPHY.

Published by THOS. H. McCOLLIN & CO.

VOL. II. PHILADELPHIA, JANUARY, 1890. NO. 1

Edited by JOHN BARTLETT.

STOPS OR DIAPHRAGMS.

IT is not quite easy to determine why the short and convenient word "stop" has been universally accepted by the photographic world as a substitute for the longer one of "diaphragm," unless we remember that photographers as a rule are very practical folk and like things called by plain and short names.

It may be that the term "stop" was adopted from the fact of the light being really *stopped out* by the diaphragm; and as the Germans call it "blende," which means a blind or screen, there seems to be some probability that this is true.

Lenses sent out by manufacturers of reputation always have the stops supplied, and the position they occupy is generally fixed. This is true for such lenses as are not intended to be taken apart and their parts used alone; when this is the case, the position of the stop must be changed.

Now, in spite of all this, it will be found well worth while to be familiar with a few general facts about the diaphragm or stop. First of all, we may say that stops are used to improve the defining powers of the lens, particularly on the margins and corners of the picture. This is accomplished by stopping out such rays of light as would come to a focus too near the lens, and by allowing only such oblique pencils of rays to pass as come to their focus on the plane of the ground-glass. The pencils forming the more central portions of the picture, pass through the opening in the stop, and come to their proper focus in very much the same manner as they would if there were no stop at all in the lens.

It is fair to say that the type or representative lens of the present day is the symmetrical doublet; or, in other words, a lens consisting of a front and a back combination which are nearly or quite twins in every respect. A more exact term in optical parlance would be to speak of the lens as what it really is, namely a *system* of lenses.

Now, it is a matter of common observation that the position of the diaphragm or stop in these doublet lenses is always in the middle of the tube at equal distances from the front and the back combinations. If one of the combinations be unscrewed and removed from its position, the other one can still be used for photographic exposures. The focal length of either combination when thus used simply is about twice that of the original lens or "system," and the field covered by the single combination will be proportionately increased in size. But if the diaphragm or stop be left in its original position, the work accomplished will not be nearly so good as it would be if the stop were moved to a new point to suit the new condition of affairs. Each of the combinations of the lens being of the meniscus form, the old rule should be here observed of turning the concave surface of the lens *toward* the subject, and of removing the stop to a distance of about one-fifth of the focal length in front of the said surface.

To take a familiar example; suppose an eleven-inch rapid rectilinear combination with the stop in the middle of the tube in the usual position, which is about an inch from either combination. Now, if it were desired to obtain the best results with either of the combinations alone, and thus to utilize the increased focal length of twenty-two inches, the proper plan would be to remove the front combination, leaving the back one *in situ*, and set the stop forward four inches from its anterior surface. In practice, this is seldom possible to do, unless a short extra tube be so adapted to the screw-thread in the front of the " system " that the desired increase of distance can be obtained. But we are sure that this hint will prove very serviceable to those who have failed in producing satisfactory results with either combination of a " system."

An attempt to use the front lens of a system alone, with the stop left in its original position, thus bringing it in the rear, would be in every respect unsatisfactory.

A great deal of mechanical ingenuity has been expended upon the different forms of stops or diaphragms. The simplest and least expensive of them is the common flat oblong piece of metal with the aperture in its centre. The sets of six of these which are usually furnished with the better classes of lenses should always have these openings quite concentric with each other. This can be verified at a glance by laying the stops together so that their sides correspond, when any want of exactitude in the openings will be seen at once.

All things considered, we should prefer this model of the stop or diaphragm to any other. The only objection to it is the danger of the loss of one or more of the set. In indoor work this risk will not make itself felt to the same degree as in Landscape Photography, where the loss of the stops would be a very serious matter indeed. A partial safeguard will be to rivet all the six together at the top, so that any one of the set may be inserted into the lens, leaving the others outside. Of course it may be objected that the loss of one will thus entail the loss of the whole; so it is indeed, but we can safely say, after many years of work out of doors with this arrangement, that a very small amount of care will keep matters right.

The new Iris diaphragms supplied with some of the superior makes of lenses, are new chiefly in the fact of an index and pointer being supplied so that a desired size of opening can be promptly secured at will. The principle of the Iris diaphragm itself is by no means new. The fact of there being no loose pieces to get lost is the strong recommendation of this form of stop; and when we have said this, we have pretty fairly summed up its merits. Supposing that the operator desired to make a change in the stop opening to one of another size, and that he also desired to effect the change without removing the focusing cloth from over his head and blinding his eyes with the strong light, the ordinary central stop would be preferable to the Iris. The change from one stop to another is easily done by feeling; while with the Iris model it is necessary to see just what is being done.

The "rotating diaphragms," as they are called, are also very convenient; more so we think than the expensive Iris; but their use is limited to the slower working lenses, which are never used with very large or full openings.

We may here take occasion to remark that practical photographing rarely, if ever, demands as many as six different stop-apertures. Taking Landscape Photography, for instance, we may safely say that three sizes of stops would be all-sufficient. One small enough to give good definition over the entire plate, and require a rather long exposure; a large one, nearly the full opening of the lens, for instantaneous effects; and one of medium size for subjects of odd character, would be enough for practical purposes, and directly conduce to good and uniform results in timing.

Nothing has ever been gained by altering the stop opening from a circle to a square, oblong, triangular, or other form. A circular hole, neatly countersunk in the metal, so that a mere edge is presented to the rays of light as they enter, is all that is necessary. Stops standing at an angle, and "sky-scrapers" as they used to be called, have had their day, and are now forgotten.

ELLERSLIE WALLACE.

ON THE DANGERS OF FLASH LIGHT COMPOUNDS.

Read before the Photographic Society of Philadelphia, at the meeting held January 1st, 1890.

WITHIN the last two years the community of Philadelphia has been startled by a series of fatal accidents occurring during the manufacture of magnesium flash-powder, a compound well known to photographers, whereby in all five human lives have been lost. On three several occasions explosions have taken place, each with fatal results, the last and most recent of all resulting in the death of three persons. As a natural consequence considerable attention and inquiry have been attracted to the subject of flash-powders and their probable dangers, and the writers of this paper were requested at a recent meeting of the Photographic Society of Philadelphia to prepare a report upon the subject.

The composition of the particular powder which was the cause of this disastrous loss of life is understood to have been powdered magnesium, chlorate of potash, picric acid and bichromate of potash. No one of these ingredients is in itself explosive except under extraordinary circumstances, and may be considered as safe; but the moment that they are mixed, an element of danger is introduced.

Many finely powdered metals are prone to rapid oxidation; give them the oxygen and the reaction takes place rapidly, and is frequently accompanied by heat and flame. Powdered magnesium and powdered zinc have been known to become sufficiently hot to ignite material in contact with them, on being wet with water.

The addition to magnesium of a chemical rich in oxygen, or holding oxygen loosely, so to speak, increases its susceptibility to rapid change.

For, instance, a match applied to some of the powdered metal will fail to ignite it, or occasions a mere glow from slow ignition; but let the magnesium be mixed with chlorate of potash or nitrate of potash to furnish it with oxygen, and the whole mass will flash with almost explosive violence. Again, mix with the magnesium and chlorate of potash some carbon, and under some conditions a dangerous explosive will be formed. For instance, oxygen gas is made safely from the heating together of chlorate of potash and oxide of manganese; allow some carbon to be accidentally mixed with the two ingredients and heated, and a violent explosion will probably ensue. The rubbing together of chlorate of potash and some organic substances is accompanied with a crackling noise and frequently explosion, as instanced in the combination with sugar or tannin.

Such compounds as we have spoken of are known as explosives, as typically illustrated by gunpowder, a mixture of nitrate of potash, carbon and sulphur. Another and more dangerous class of chemical compounds which may be formed under some circumstances are known as detonators; that is, compounds the component parts of which are held together under so strained a condition of high tension that a very slight cause, such as a light, sharp blow will occasion them to fly apart violently with a sharp, loud report; in other words they detonate. The force of an *explosion* is felt at a greater distance than that of a *detonation*, but the disruption of surrounding bodies is greater and more complex with the detonation than the explosion. An explosion is generally accompanied by fire and smoke; a detonation is not.

Many detonating compounds may be heated and burned until consumed without discharge, whereas the detonation or snapping of a common pistol cap in contact with or near them, may detonate the entire mass; such is the method adopted in the explosion of mines, etc.

Picric acid is, in itself, we might say, perfectly safe, as it can be burned without danger, and will detonate only when confined. In compound, however, with some other bodies it produces a class of very dangerous substances, notably picrate of potassium, picrate of sodium, picrate of barium, picrate of strontium, picrate of magnesium, and picrate of lead. These substances are extremely unstable in character, and liable to explode with slight percussion or friction with the liberation of immense volume of gas. Sarran states the relative force of picrate of potassium, when exploded, as compared with gunpowder, is as as 1.98 to 1.00,—almost twice as great. A mixture of 0.5 kilograms of potassium picrate and 0.5 kilograms of potassium chlorate evolves through its combustion 352 litres of gases. 1 kilogram of gunpowder evolves but 200 litres under the same circumstances.

Picrate of magnesium is, when dry, one of the most unstable of its compounds, and therefore highly dangerous to handle. It may be made in a wet way by double decomposition or by the intimate mixture of the powdered ingredients. Time is, of course, an important factor in the latter process of manufacture, but a microscopical examination of the mixture after long standing will show that the metal has entirely disappeared, and the explosive compound been formed. There is no doubt but that this combination may be greatly assisted by the presence of atmospheric moisture. Powdered magnesium is quite hygroscopic, and has a tendency to cake together in loose masses, or adhere to the sides of a bottle, if exposed to a moist atmosphere. Picric acid when powdered is also rather sticky in character, and it can be readily seen how if these two substances existed together in a mixture they would be attracted to one another; then, given the elements of time, moisture, and perhaps some slight warmth, and a chemical combination would inevitably occur. That this is not simply theory, but fact, can be substantiated by a fact lately mentioned to one of the writers of this article by Prof. Henry Leffmann, of this city, in a personal conversation. He stated that some time previous while microscopically examining a sample of flash-powder which contained picric acid, he was surprised to notice an entire absence of metallic magnesium, the yellow crystals of picric acid being alone prominent. On dropping the powder into water, however, an abundant sediment of metallic magnesium was deposited, showing its presence, and a closer examination of the powder showed that the particles of magnesium were completely enveloped in a yellow coating of picric acid. Of course these circumstances afforded a most fruitful opportunity for the conversion of these two substances into the explosive picrate of magnesium.

Here in is the probable explanation of the late calamity at the laboratory of Wiley & Wallace.. A bottle containing in the neighborhood of several pounds of flash powder, made, after the before-mentioned formula, some eighteen months previous, was being emptied into a drain for the purpose of getting rid of it. No fire or other chemicals were known to have been present. Water had been thrown upon some of it to aid in its being carried down the drain. Experiments subsequently made proved that the presence of water would not occasion sufficient heat to ignite it. The most reasonable supposition is, therefore, that a small portion of the powder was detonated by an accidental blow and from thence the entire mass was detonated. No smoke or burns appeared upon the bodies of those killed, or surrounding objects, thus proving the absence of fire. For the preceding disasters by the same powder another theory must be advanced, as they occurred at the time of the mixing of the ingredients, and previous to the probable formation of the picrate of magnesium. In the first case there was an explosion during the process of grinding the material; in the second case, while the powder was being sifted. In the first case it can readily be seen that an explosion would be the natural sequence. In the second case it is probable that some clogging of the sieve occurred during the mixture of the materials. The loss of these five lives is a terrible caution against the use of the especial compound which caused the explosion, and a sufficient reason to regard with suspicion any powder the formula of which is not made public and known to be safe. This especial formula produced a compound which was alike unsafe to make, to use, or to keep. To sell such an article, therefore, for ignorant and unskilled persons to use, or to induce any one to attempt its manufacture, places a fearful responsibility upon those who knowingly undertook such a risk.

It is much to be regretted that the formulæ of most of this class of preparations are not published, and it is highly probable, in many cases, that their ingredients have been combined with but little regard to their chemical properties and the chemical reactions which might occur from their admixture, The fact that the compound may bear a label proclaiming it " safe" is but a very slight guarantee when its composition is altogether unknown.

It seems hardly necessary now, in view of all that has been said, to raise a note of warning in regard to the use of all these flash powders, but the statement has been already made that while this one particular compound was unsafe, other compounds are harmless. The writers wish to state, therefore, that they consider *all* *forms* of flash powder dangerous, the difference between them being only in the degree of danger involved. As has been said, they are all composed of substances liable to rapid decomposition when in contact with each other, they are liable to form new compounds often possessing dangerous and unknown properties, their combustion is attended with an intense degree of heat, involving risks from severe burns, and they are liable to spontaneous explosion or ignition. This danger is greatly augmented when they are made or kept in mass, and the probable reason why a greater number of fatal accidents have not occurred is because the powders have mostly been made in comparatively small quantities and put up in separate packages, each containing but a few grains of the mixture. They contain, in most cases, chlorate of potash, bichromate of potash, permanganate of potash, ferrocyanide of potassium, nitrate of potash, amorphous phosphorus, and other highly organized compounds, the very purpose of their admixture with the magnesium being to increase its inflammability and the rapidity of its combustion. This can only be done by making the combination more unstable, and thus introducing at once a large element of danger. A simple mixture of magnesium and chlorate of potash, which has been claimed to be harmless, if placed in a confined situation, as in a pistol, and discharged by a cap, will detonate, and there is probably no compound of this character which does not possess some elements of danger.

Since the introduction of the different forms of the magnesium lamp, in which pure metallic magnesium can be burned with absolute safety, there seems to be but little reason why the use of flash powder should be continued, and as the only possible advantage in their use over that of the lamp is that a slight amount more of speed may be obtained, the question may well be asked whether the possible advantages to be gained are worth the additional risk involved in the use of the flash powder.

In conclusion, the following quotation from Eissler's work on "The Modern High Explosives" may well be cited here, more particularly in reference to combinations into which potassium chlorate enters:

> " In mixing these compounds great danger is attendant, and too much circumspection cannot be used. They explode instantly upon any violent stroke, very often by friction alone; sometimes spontaneously, as when in a state of rest, and no known cause for their combustion can be assigned. Many are deluded as to its safety by so-called experiments with freshly-made powder. Manufacturers of the compound may attempt to show its safety by hammering it and cutting it, and similar tests; but let the powder be exposed to the natural atmospheric action, attract some moisture, then get dry, and the least friction or blow will cause an explosion."

The writers hope that the knowledge of the dangers attending the use of flash powders is now so diffused that no further accidents will result from their use, and that their manufacture will eventually be abandoned.

JOHN G. BULLOCK,
CHARLES L. MITCHELL, M.D.

[THE above paper on the dangers attending the use of magnesium flash powders, was read at the January meeting of the Photographic Society of Philadelphia. While admitting the force of the argument that the employment of complex compounds of an unstable character may be attended with risk, we cannot admit the conclusions of the authors that all such powders should indiscriminately be condemned. There are many valuable compounds of chemistry which are indeed indispensable in the arts, notwithstanding some danger is assumed by their careless use, but such compounds are not rejected because of such risks. It has been demonstrated time and again that magnesium alone is *not capable* of giving the same actinic force as it does when combined with those chemicals which are necessary to increase its energy. For photographing living objects the pure magnesium powder alone is not capable of giving instantaneous exposures, and so we believe that photographers will continue the use of flash powder for such purposes. It is, therefore, hardly just to condemn the use of *all* such powders or to maintain that they should never be used, simply on the ground that there is a danger attending their careless handling. The danger to the photographer using the flash powders would be very slight indeed, as he only handles them in small quantities; there being but a few grains used at an exposure, and the manufacturer selling it as he does only in ounce packages, which are again subdivided into twenty smaller ones, reducing still farther any chance of damage in using such powders.—ED. AM. JOUR. OF PHOTOGRAPHY.]

OUR ILLUSTRATION.

DINANT, situated, say, 50 miles| south of Brussels, on the river Meuse, in Belgium, and 18 from Namur, is a town of 7000 inhabitants. In 1467 the town, having incurred the anger of Phillipe le Bon, Duke of Burgundy, was besieged and taken, and the people treated with great cruelty; orders, however, were given that women, children, and priests should be respected. Fire, having been started by some soldiers discontented with their share of plunder, ran completely through what was left of the town, and reduced it to ruins; to complete its destruction, the towers and walls were razed to the ground by the besiegers. Oliver de la Marche, a French historian of the fifteenth century says, " Dinant was burned in such a fashion that it looked like a town that had been in ruins a hundred years. The glory of Dinant commences with its misfortunes; but the proud and aggressive character of the people was the principle cause of its disasters. It had long been famous for the " dinanderies " (counting 252 master beaters in copper in the time of Charles Quint), a kind of ornamented copper work; fine samples of which may be seen in the baptismal fonts in the church of St. Bartholemy, at Liege. At Dinant they occupied themselves particularly with the artistic forms of this copper work, while at Bouvignes, a small mediæval town about two miles below Dinant, they made the more useful articles. This trivial fact was the cause of endless feuds between the two towns, both of them at that time powerful and large; Dinant was represented in the thirteenth century as surrounded by a wall with 80 towers, and Bouvignes as an impregnable city. In fact, by industry, commerce, and population, it ranked as the second town in the province of Liege. It is even said to have rivalled this capital, whose population at the time was more than 120,000.

This unfortunate town was taken a second time by the French under the Duc de Nevers in 1554, and plundered, and a third time in 1675. The famous "couques de Dinant" are cakes made of flour and honey, run into flat moulds of the most varied and fanciful devices, such as fish, crosses, and particularly rude views of the town with rock and citadel. Some are very large (three feet square), and are believed to be a relic of the "dinanderies." They are not intended to be eaten, but constitute one of the principal industries of the place, and large numbers are exported. There are now numerous establishments for tanning, stone quarrying, and manufacturing of merinos and cachemires. The artist Wiertz was born here. The new iron bridge was finished October 24th, 1870, and during the laying of the foundations were found, a fine cannon of gilded bronze, a grave stone of 1369, coins, spurs, cannon balls, etc., etc. The citadel, approached either by 408 steps from the Hotel de la Tête d'Or close to the church, or by a carriage road going up behind the hill, commands a most beautiful and thoroughly unique bird's-eye view of the town and the river. Victor Hugo has spoken of the town of Dinant lengthening itself out like a sword blade. Good museums of local antiquities are found in the citadel; amongst other curiosities is the carriage in which Madame de Maintenon accompanied Louis XIV. when he came to superintend the seige of Namur. The church dates from the thirteenth century, and has been well restored. Rocher Bayard is believed to be so called from the celebrated horse named Bayard, who left the print of his foot on it when he plunged into the forest of Ardennes in search of his masters (Quatre Fils d' Aymon.) The cleft was widened by order of Henry XIV., to facilitate communication up the valley. Our illustration gives a good idea of the curious steep rock; the wagon road passes through the narrow space at the bottom. The shores of the river Meuse all about this region abound in picturesque subjects for the camera. Our view is made about a mile above the town, and the negative is on a Washed Collodion Emulsion Plate.

* * *

WHY does a sculptor die the hardest of deaths? Because he makes faces and *busts*.

WHY will the emblems of America outlive those of France, England, Ireland and Scotland? The *lily* will droop (France), the *rose* will fade (England), the *shamrock* will wither (Ireland), and the *thistle* will die (Scotland), but the *stars* are eternal (America).

* * *

VALUE OF SILVER WASTE.

IT is rather surprising that there should still exist in the minds of many practical photographers a good deal of uncertainty with regard to the true value of their silver and gold wastes. In the early days of the art very little attention was paid to the systematic saving of the precious metals in the waste, although Dr. Vogel, in his Handbook of Photography, in 1871, gave some interesting estimates of the amount of silver in the finished print and the quantity that goes to waste in the wash-water, hypo, clippings, etc. Of late years, however, close competition has compelled the photographer to consider his wastes as a source of revenue, and now, when the proper systematic care is exercised in saving them, but little that is valuable of the precious metals is actually lost. The writer, some years ago, made a number of experiments and assays to determine the amount of silver that went to waste during the process of silver printing. The results, which were published in a pamphlet, called attention to the very trifling amount of silver in the finished print, amounting to only about 6 per cent., and the large proportion which with care might be saved.

It is, perhaps, a little unfortunate that the possibility of recovering so large a per cent. of the silver used has led a good many to expect to get back really more than they have actually consumed. There are some photographers who, with a laudable desire to save all their paper waste, sweep into a corner of their printing room everything that falls upon the floor, and in a short time a pile accumulates, consisting of some clippings, with a varied assortment of old newspapers, card mounts, dry-plate boxes, broken negatives, nails, and pretty much everything, down to old hats and shoes. This heap is regarded with a jealous eye as a possible mine of great wealth, and when the meagre return from the refiner comes in the photographer is much disgusted, and in his ignorance of the simple facts in the case believes he is the victim of gross fraud. There are others who, through lack of time or interest in the matter, delegate the proper care of their wastes to some one in their employ. Of course the conscientious printer will do the best he can, if he has the proper instructions, but an intelligent supervision is always necessary in looking after the details of any business to insure success. Although it should not be the principal effort of the photographer to make the saving of his wastes the chief aim of his business, yet it is a matter which is worth a little personal attention, as he will then be able to form a pretty accurate estimate of the value of his wastes, and, having a knowledge of the amount of nitrate of silver purchased during the time, he can compare, with some degree of fairness, his expectations with the actual returns when they come in.

To do this, it is most important that the waste paper and residues should be kept clean and free from foreign matter. A barrel or large box in a convenient corner in the printing-room may be made the receptacle for all clippings, proofs and spoiled paper, and nothing else should be allowed to get in but silvered paper. Under such circumstances it will be easy to form a close approximation of the actual value of such waste. It must be borne in mind, however, that the presence of bromide paper, and especially blotters, will considerably lessen the value of the waste, while on the other hand many rich filters, or papers which have become saturated with the dripping of nitrate of silver for a long period, will noticeably increase it. It has generally been conceded that 1 ounce of nitrate of silver is consumed in sensitizing 20 sheets of paper. As 20 sheets of silvered paper will be found to weigh 16 ounces or 1 lb., it follows that it will be impossible to get from a pound of such paper more than 1 ounce of nitrate of silver. Now as 1 ounce of nitrate of silver contains 63.5 per cent. of metallic silver the one pound of paper will contain 277 grains of metal. The value of metallic silver varies from day to day, so that the value of the waste will fluctuate in a corresponding manner. Supposing that fine silver was worth 95 cents per ounce (the average price for some months past), the value of the 277 grains of silver would be 54$\frac{8}{10}$ cents. This 54$\frac{8}{10}$ cents then is the actual value of one pound of perfectly clean silvered paper. Of course it stands to reason that there must be some expenses and profit to the refiner in recovering the silver from the waste, which must be deducted before the net value to the photographer is reached. These expenses may be great or small, but there must be some charge for refining, and as few photographers have the time or knowledge necessary to successfully refine their own wastes, they should not begrudge the modest charge deducted from the returns.

The experience of a number of years in the reduction of silver residues has enabled the writer to verify the above figures.

Paper silvered upon a 60 grains bath has been found by careful assay to contain 14 grains of metallic silver to each sheet, five grains existing as free nitrate of silver, which is removed in the washing before toning, the balance being chloride of silver, the bulk of which is dissolved out by the hypo. As 14 grains of silver are present in one sheet of paper, 20 sheets (or one pound) would contain 280 grains, a close approximation to the theoretical calculation. In another paper will be shown the value of the wet residues, toned prints and gold waste.

George Brinton Phillips.

What is the difference between a young woman and an old one? One is careless and happy, the other hairless and cappy.

Why is a bald head like the north pole? Because it is a great white bear (bare) place.

Why was Powers the sculptor the meanest of men? Because he gouged a poor Greek girl out of a piece of marble.

A NEW DANGER TO AMERICAN INDUSTRY.

ONCE more an American industry is menaced and in danger of being proscribed in Continental Europe; this time it is the American dry plate that comes under the ban. The current number of the *Photographisches Wochenblatt* sounds the note of warning, and urges all amateur and professional photographers, under the circumstances, to beware of the purchase of any "Amerekanische Trocken-platten" (dry-plates), or keeping any upon their premises. The cause of this agitation is said to be the discovery of an insect which breeds in the emulsion on the dry-plates and films, and is said to prove as destructive to the plates as the potato-bug is to vines of that tuber,—and if the pest once gains a foothold in any gallery, every plate and negative will soon be destroyed, and the place become infested as a barn or granary with weevil.

Since the above mentioned urgent note of warning was issued to all Continental photographers, further particulars have reached us, together with the circumstantial account connected with the alleged discovery of one of the much-dreaded insects.

It appears that the son of Herr Isidore von Dunkelkammer, K. K. Geheim-Commerzien-rath, in Berlin, purchased from a local dealer a box of dry-plates of a celebrated American maker. On opening his purchase, in his dark room, he found securely intrenched between the two packages of plates a nondescript bug or insect. The youth, who is an active member of the "Sonntags-Photographischer Jäger-Verein," at once surmised that here was one of the much-dreaded insects, against which the note of warning had been sounded in the *Fach-blätter*. He reported the matter to his father, who, as an officer of the government, felt the weight of the situation which rested upon him; repairing to the dark-room, von Dunkelkammer ordered that the animal be put in a vial and hermetically sealed, and sent to the "K. K. Academic der Naturlichen Wissenschaften." A special meeting was called for the occasion, when the extreme thinness or flatness of the specimen was much commented on, whereby it would be able to force its way between the sheets of glass or film as they were packed in merchantable packages. The vial containing the specimen, as an extra precaution, was enclosed in another bottle, which was also sealed, and was ordered to be made the special subject for the next regular meeting of the faculty a week hence.

When the day arrived Prof. Raupe von Cassettenschieber opened the subject by stating that it was his sorrowful duty to inform the Academie that another American pest had appeared at the threshold of Europe, and threatened the ruin of one of the Fatherland's most beautiful professions and amusements, viz., die Kunst der Photographie, but that he had positive assurance that the Government would at once take the most radical steps to prohibit the introduction of any photographic material from America, in fact that the Imperial Council would place the same interdict on American films and dry-plates, as the Imperial Chancellor had placed on the American hog. The learned Professor was seconded in his remarks by Herr K. K. Hof-Photograf Weitwinkel; after which Dr. Aaron Eisenoxolat, inspector der Deutschen-reichs-Trocken-plätten, offered a resolution of thanks to all editors who had given publicity to the new danger which threatened to ruin every photographer within the realm, which was passed unanimously. After which Herr Rudolphsohn von Momentverschluss, who was also "Intendant und Geheim-inspector des Staats-Detective Polizei," stated that by order of the Imperial Chancellor his department would at once take measures to seize all American dry-plates and films wherever found within the Empire, and that the confiscated material would immediately be taken to the Imperial Crematorium at Spandau, and there subjected to a heat of at least 2400° Fahrenheit, which the Sanitats Behörde had judged to be ample to destroy any molecules or germs which might escape from the packages during the operation.

A further resolution of thanks was passed complimenting Geheim-Commerzien-Rath von Dunkelkammer for his courage and diligence in capturing the dreaded insect, and his disposition of the same.

The members then adjourned to the Laboratory of the Academie, for the purpose of making a thorough and scientific examination of the captive specimen, so that an exact description could be published for the information of the public in general. Special preparation had been made. Dry plates of all known makers, domestic and foreign, were placed side by side, so as to allow the insect to pass over them consecutively, to see if any one make offered special attraction to the destroyer. It was concluded not to experiment on the subject with the various poisons, as in case any should prove fatal it would undoubtedly interfere with further investigation.

Not the least results were expected from the microscopic examination ; this was to take place by the great bi-ocular-plano-electro-objective. For this occasion the subject was to be illuminated by an electric light generated by a purified currrent of electricity of at least 3000 volts, Siemen measurement ; this part of the investigation to be under the immediate supervision of the celebrated specialist, Herr Baron Natron-Ritter v. Fixirlösung, and "Reichs-Staats-Geheim-Insecten Anatanom" der Kaiserlichen Academie, who was himself an enthusiastic amateur photographer of no mean pretensions. After the specimen was brought forth, and taken out of its double receptacle, it was carefully laid under the objective of the great microscope ; as an extra precaution, the receptacles which had come in contact with the insect were all treated with a 99 per cent. solution of the new disinfectant, "Eiko-Gallioll."

After the focus had been properly adjusted, the learned professor ordered the following description of the specimen to be inscribed on the bulletin :

Genus.—Epizoa.

Order.—Hemiptera.

Head.—Small, from which project two long antennæ.

Eyes.—Compound, behind which are two transparent flaps, covered with bristles which are the rudiments of wings.

Thorax.—Broad and short.

Abdominal Segment.—Very large, broad, and extremely flat.

Color.—Reddish brown.

It was further ordered that Herr Grobschmidt, the Librarian and Archivar, should properly classify and enter the subject as "Der Americanische-Gelatin-Brom-Trocken-plätten-zerstreungs-Käffer.

The members now in turn examined the subject under the microscope. Something of a sensation was caused when one Griffelschaber, a schoolmaster, and who was only a member by courtesy, ventured the opinion that possibly the learned president was mistaken in his diagnosis, as in his humble judgment the specimen under examination certainly bore a strong resemblance to he *Cimex tectularius vulg.* The schoolmaster was at once called to order and threatened with expulsion if he did not remember his position.

After the ripple caused by the above interruption had subsided, the specimen Käffer was subjected to a current of electricity of fully 8500 volts, to insure its destruction, after which it was suspended in a vial of 95 per cent. alcohol, properly sealed and attested, and placed on exhibition in the "Museo der Academie."

When the action of the faculty was brought to the attention of the Imperial Chancellor, he at once entered upon the suggestions and issued the necessary edict, and as a sequence American dry plates will soon be excluded from Europe.

That this manifestly unjust action will be resisted to the bitter end by interested parties in this country, as the matter becomes known, may be taken as a foregone conclusion. It is hard to state what complications may arise if the German government persist in its course in the premises.

The initiative in the matter of retaliation was taken at the last meeting of the "Leopardville Camera and Tripod Club," where a resolution was passed: "Not to use any chemicals or photographic paper imported from Germany, until the obnoxious edict reflecting on American dry plates be repealed."

A communication was also sent to the State Department at Washington, with the request that the matter receive immediate attention. In response, the Consul General at Berlin has been telegraphed to, and several messages have passed to and fro on the subject.

Personally we have no doubt that taking into consideration the fact that the squadron of evolution is now in European waters, the whole matter will be amicably adjusted without delay. J. F. S.

WHY is a *poor* doctor like a mole? You can track him by his holes in the ground.

WHY do you suppose that tight-rope dancers are great favorites with the public? Because their performances are always encored (on cord).

WHY is a woman mending stockings deformed? Her hands are where her feet ought to be.

WHY is a chicken sitting on a fence like a penny? Because its head is on one side and its tail is on the other.

A DREAM OF PHOTOGRAPHIC PERFECTION.

ANY amateur properly infected or inoculated with the delights of photography invariably suffers with a yearning for "fresh fields and pastures new" in which to soothe the consuming fire of desire to accomplish something startling. He devours all the hand-books, almanacs, journals, and literature; buys apparatus of all kinds, till his pocket is empty; consumes whole oceans of solutions and quantities of reagents, without quenching his desire, though often getting a return of a few poorly developed negatives, improperly exposed, and lacking in artistic or chemical qualities. The professional brother meantime laughs in his sleeve, and the old conservative amateur, who knows all about "how the wheels go round," consoles the victim with "it serves you right," or "I told you so." But one of these victims dreamt of a possible relief from his troubles, and during the few sweet minutes of his illusion was the happiest creature imaginable.

He found himself in the goodly company of a lot of whole-souled, genial photographers, who had every successful method at their fingers' ends, and whose glib tongues could explain with lucidity every theory, or reaction, or method, and who were only too happy to give points that smoothed the paths of doubt and ignorance in which the dreamer had been stumbling. He was in a plain but thoroughly equipped working establishment, fitted out with cameras of all kinds for varying work; with arrangements for exposing and timing his plates, or making lantern slides, or enlargements, or reductions, or accomplishing the myriad undertakings of picture making—with appliances of every kind that conduced to quick working and good results. He saw how good tripods made steady cameras; how different lenses, or parts of one lens, made marvellous changes in the pictures; how a good lens could be determined by actual practice from a bad or indifferent one; and how, by the use of proper shutters and diaphragms, and color shields, and other means, so many things could be rendered that he had never thought of. There were complete photometric arrangements for determining the values of emulsions of different plates, and outfits for working with collodion, both wet and dry; there were easels of all sorts for artistic work, either for copying, enlarging, or retouching; and on all sides examples of the very best work ever accomplished, and of poor work, which would serve as a guide to warn against like misery. He found a perfect museum of finders, focussing-glasses, lenses, cameras, tripods, printing-frames, and the thousand-and-one concomitants used successfully in producing new effects, and was enabled to participate in the grand satisfying accomplishment of tangible results under the guidance of the genial spirits that flitted about him, and for once was as if in the heaven of photography!

He carried away with him in his dream these memories, and returned, at shortening intervals, to the scenes of such delight to find each time something that interested or delighted him, and was at last able to contribute something himself to the array that gave him so much comfort. But alas! the awakening came only too soon, and he found it was but a dream! His ideal had been shattered, and his hopes wrecked; he went on with his photographic struggle, half-hearted and weary, yet feeling all the time there ought to be some relief, some hope, some means of accomplishing what had thus far been his consuming passion.

Was he too sanguine, or is there any possibility of finding the sympathy he wants so poignantly, physical, mental, artistic, and mechanical?

Is it a dream or phantom to imagine that by a combined effort of the many workers in photography such a "hall of delight" can be erected and constituted, and made practical? Is it impossible to organize a working institution with the appliances and surroundings dreamed of by the unhappy one? Surely no!

In London the Camera Club has rooms with just such surroundings, besides apartments for social and mental enjoyments,—collections of literature, art, and photographic appliances, with set courses of lectures and practical demonstrations; with competent and willing, even enthusiastic, men to lead on the tyros, and the club-rooms are a continuous joy and source of comfort. Boston and New York have approximations to this ideal, and more real enthusiasm among their workers and consequent happiness than can be imagined by those unprovided with these essentials.

That a unity of effort,—a long pull, a strong pull, a pull all together,—will accomplish results that amaze, and the dreamer need not fear that his ideal will vanish into thin air if he can but induce a few kindred spirits, endowed with his enthusiasm, to join him in such an undertaking. Therefore the dream may not prove unavailing, if, in the many communities of this progressive land, the photographic workers can be induced to come together to work in unity of effort to glean over the fields that have been cultivated by those gone before, and to plant new seeds of photographic progress, and even if unable to accomplish this much, at least be enabled to follow reasonably closely the plough of the skillful and successful workers of the present day, and comprehend the delights that are turned over in the furrows to grow to great growths of increasing knowledge in science, and æsthetic delight in art.

F. H. R.

January 2, 1890.

IN what color should a secret be kept? In violet (inviolate).

WHAT color is a sick dog? Purple (*purp* ill).

WHAT color are the waves and winds? The waves *rose*, and the winds blue (blew).

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DARKENED SILVER CHLORIDE NOT AN OXYCHLORIDE.

ABOUT two years ago I published a series of papers in *The American Journal of Science*, the main object of which may be briefly stated as follows:—To prove that the substances which I described as "photo-salts," and obtained by purely chemical means, were identical with those produced by light, with both the visibly darkened substances, and the material of the latent image. Further, that all these substances consisted of a silver haloid (normal chloride, bromide, or iodide) combined with the corresponding subsalt, not in equivalent proportions, but after the manner of a "lake." The subsalts, being unstable substances when isolated, acquiring much greater stability by the union.

The only objections I have seen to these views were based on investigations made in England by Dr. Hodgkinson; his conclusions were that an oxysalt and not a subsalt was formed. Although several years have elapsed since his conclusions were made public, the means by which they were reached, and the necessary experimental proof, do not seem to have been published. Mr. Meldola, in his interesting *Chemistry of Photography*, in treating of this part of the subject, seems disposed to accept Dr. Hodgkinson's theory and his formula, $Ag_4\ O\ Cl_2$, for darkened silver chloride. Mr. Meldola adopts my views that the photo-salts which I described, and which were obtained by purely chemical means, are identical with the products resulting from the action of light on the silver haloid, but expresses the opinion that I have not proved my theory of their constitution.

It has always seemed to me that the whole mass of observation on the action of light on silver chloride tended so thoroughly to indicate the formation of subchloride, that we might reasonably accept that view, at least, until something in the way of proof was offered for the oxychloride theory. But, waiving this objection, I will endeavor to show that subchloride and not oxychloride is the product of the action of light on silver chloride.

The question as to the presence or absence of oxygen in colored silver chloride is one that cannot be determined satisfactorily by quantitative analysis. Taking, for example, the formula just mentioned, $Ag_4\ O\ Cl_2$, it would involve the presence of about three per cent. of oxygen if the entire mass of silver chloride were converted into this substance. But we know that even by the longest exposure the proportion of Ag Cl acted upon is very small. It would probably be a liberal estimate if we were to fix five per cent. of the whole mass as the proportion changed by light, so that the amount of oxygen that would—according to the oxychloride theory—be introduced into a given quantity of chloride by prolonged exposure would not exceed three-twentieths, or 0.15 of one per cent. of the material under examination—a dangerously small quantity on which to attempt to decide an important question, especially when the estimation is indirect. If even a very careful determination of the silver and the chloride present should bring the sum of these to a quantity represented by figures amounting to from 99.80 to 99.90, would it be allowable to assume that the difference between this and 100 consisted of oxygen, and so to take the presence of an oxychloride as proved? Such reasoning could not be accepted; the errors, incident to the most careful analysis, would too largely affect the point vitally at issue, not to speak of the entire absence of proof that the deficient quantity was oxygen.

These considerations convinced me that it was not in that direction that one should seek for proof of the presence of oxygen in the substance in question. I therefore looked for what may be called *proof by exclusion.*

Coal naphtha (refined petroleum) is a substance absolutely free from suspicion of containing oxygen or moisture as impurities, so much so as to be universally used for the preservation of sodium. I have sodium that has been preserved in this way for over thirty years. Silver chloride was precipitated with excess of hydrochloric acid, was washed in a darkened room, and dried in a desiccator. From this it was transferred to a porcelain crucible, covered, and fused over a lamp. When thoroughly fused (in this condition it is as fluid as water) it was poured directly into naphtha. This naphtha had been placed to the depth of an inch or more in a dry porcelain vessel, which was first well wiped out with naphtha to remove the film of atmospheric moisture which condenses on surfaces.

The chloride congealed into a pale grey lump, which, whilst it remained under the petroleum, was absolutely free from all possibility of contact with oxygen, free or combined. Without removing it, the vessel was moved into the sunshine; when touched by sunlight, the chloride instantly became as black as ink.

This experiment seems decisive as to the oxychloride theory.

It seemed desirable not to stop here, but to find a means of applying an equally decisive proof by exclusion to the converse case. In the above instance, a photo-salt was formed by reduction, starting with normal chloride. The converse case would be the formation of a photo-salt by chlorination, starting with metallic silver, and excluding oxygen, free or combined, thus demonstrating that that element is not needed, and plays no necessary part in the formation of silver photo-chloride.

Anhydrous cupric chloride, which I at first thought of employing, proved to be insoluble in naphtha. In rendering ferric chloride anhydrous, there is a possibility of forming oxychloride; it could therefore not be employed. As it is not in the least important which halogen is used, I concluded to take iodine, which proved to be slightly soluble in naphtha, with a beautiful violet coloration. The mode of operation was as follows:—Pure silver reduced by cadmium from the chloride was heated nearly to redness in a porcelain capsule, and at the instant of removal from the flame was dropped into naphtha. Some fragments of iodine were added. Owing to the very small amount of iodine soluble in naphtha the action was slow, but continuous and regular. As fast as the iodine was dissolved it was taken up by the silver. At the end of some hours the iodine had disappeared wholly, and the naphtha was colorless. Fresh naphtha replacing it failed to dissolve any iodine; the whole of it had combined with the silver to a black compound. This experiment may be varied by using a piece of clean silver foil, or even a silver coin that has been boiled a few moments with nitric acid, washed, and heated by a blast lamp; immersed in the naphtha with iodine its surface soon becomes perfectly black.

This reaction forms the complement of the other, and the two show that whether we start from silver chloride and proceed by reduction, or from metallic silver and proceed by iodisation, in either case we can obtain a photo-salt under conditions which rigorously exclude all possibility of the presence of moisture or of oxygen in any shape.

Therefore the photo-salt is not an oxysalt, but, as I endeavored to prove two years ago, a compound of normal salt with subsalt.

The action of light upon silver chloride appears to take place in the following manner:—If any substance is present with which chloride can combine, either directly or by substitution,* the AgCl is decomposed with formation of subchloride. As the product is subchloride and not oxychloride, it is not necessary that the substances present should contain oxygen, as has just been shown. The subchloride thus formed instantly combines with a portion of the silver chloride as yet unacted upon by light, forming a photo-chloride of great stability, capable, for a time, of resisting the action of nitric acid. (I have shown that the photo-chloride made by purely chemical means also shows this stability.)

This combination is not by equivalents, but it is of the nature of a lake, and the affinity of silver chloride for the subsalt is of a progressively diminishing character. Small quantities of subchloride are held with great tenacity; as the proportion of subchloride increases the affinity diminishes. This is no assumption; it is easy to form chemical photo-chloride containing a large proportion of subchloride. Much of this latter is instantly decomposed by old nitric acid; with heat an additional quantity disappears, and so on, until the last portions may require hours of boiling with strong acid for decomposition.

This stable combination of the chloride and subchloride constitutes alike the material of darkened chloride, of the latent image, and of the photo-chloride.

An excellent mode of testing the value of a chemical theory is to observe its ability to explain, not only the general result of a reaction, but also the secondary facts observable. In the present matter—the action of light on silver chloride—there are two such secondary facts of a quite remarkable nature, for which, though long familiarly known, no explanation has hitherto been found, but which, I think, will be found to be readily and satisfactorily explained by the photo-chloride theory.

1. When silver chloride is exposed to light, there is a certain pause, an interval, during which very little action takes place. After this the darkening sets in rapidly; this fact is so conspicuous as to attract the attention of every one who exposes chloride paper.

The explanation is:—Light pink or violet photo-chloride is vastly more sensitive to light than white chloride, a fact proved by preparing light-colored photo-chloride by any of the chemical means I have elsewhere described, brushing it and white chloride, each in a pasty condition, over respective strips of paper, and exposing side by side; the difference in the darkening is very striking. Now, the first action of light on white chloride is to form this light-colored photo-chloride, and whilst that is going on but little visible effect is produced. As soon as the photo-chloride is once formed the darkening becomes rapid. The time required for the first formation of the photo-chloride gives rise to the pause which is observable.

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* As to the action of light on silver chloride perfectly isolated, *i.e.*, in a perfect vacuum, it would appear, from an interesting experiment of Abney's, that no decomposition takes place. It was found that AgCl in vacuo did not darken, even by prolonged exposure.

This experiment does not indicate that the presence of moisture is essential for decomposition; it simply proves that some substance (by no means necessarily water) must he present upon which chloride can act. Accordingly, when the vacuum tube contained mercury, the AgCl was decomposed by exposure to light. It may be remarked that this last-mentioned fact, properly considered, would have been found to be fatal to the oxychloride theory, inasmuch as darkened chloride was formed in the total absence of oxygen.

2. When pure, moist, silver chloride is exposed to light, the darkening goes on steadily to a certain point, and then virtually ceases. Although the mass may be constantly agitated so as to expose fresh portions, whilst it is kept moist, or, better, kept under water, the action of light after a few days' exposure ends almost wholly, and though the chloride now seems perfectly black, analysis shows that the amount of chloride altered has been very small—perhaps a twentieth. For this well-known and most remarkable fact I believe no explanation has ever been offered.

It is to be explained, I think, as follows:—When light acts on moist silver chloride, acid products are formed the nature of which has not been fully made out, but whose presence is certain. (If the exposure is made under water, the water reddens litmus; it does not bleach it.) These acid products would instantly destroy silver subchloride isolated. As long as the quantity of subchloride present, and combined with normal chloride, is small, the protecting power of the normal chloride saves the subchloride from decomposition. The ability of normal chloride to protect the subsalt rapidly diminishes, as already mentioned, as the proportion of the latter increases. These forces in time find an equilibrium (as in the case of many other chemical reactlons) in which the quantity of subchloride becomes constant, and any excess that is formed by light beyond the quantity which the chloride can protect is instantly destroyed; consequently even the most protracted exposure fails to increase the proportion of subchloride beyond its limit.

The complete cessation of the reducing action of light, after a certain very small fraction of the chloride present has been attacked, cannot be explained by the oxysalt theory; for, if a small portion of the chloride has been converted into Ag_4OCl_2, there is no conceivable reason why a continuance of the same agencies at work should not affect the residue, and so go on until the whole of the silver chloride passes into the new condition. No theory deserves serious consideration that does not offer a satisfactory explanation of these two conspicuous facts: the pause at the outset, and the cessation of action as soon as a certain small proportion of chloride is reduced.

A confirmation of the explanation here offered is to be found in the fact that black forms of photo-chloride, chemically formed, are almost wholly unacted on by light. By treating metallic silver in a state of fine division* with sodium hypochlorite, black photo-chlorite is easily formed, which, after two or three treatments with hypo-chlorite solution, gives up nothing to cold nitric acid. It is almost wholly insensitive to light, because as fast as normal chloride is decomposed by light it is reconstructed by the conversion of a corresponding quantity of subchloride present to normal chloride. The chloride and subchloride are in an equilibrium, which the action of light does not alter.

M. CAREY LEA.

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* For such purposes, metallic silver is best obtained by precipitating the nitric with sodium hydroxide in excess, and without washing, adding a solution of milk sugar. In a few hours the reaction is complete (Levol's method.) If the presence of any undecomposed oxide is feared, the product may be washed with ammonia.

THE PHOTOGRAPHIC SOCIETY OF PHILADELPHIA.

A REGULAR meeting of the Society was held Wednesday evening, January 1, 1890, the president, Frederick Graff, in the chair.

The secretary read a communication inviting entries to the exhibition of the Worcesershire Camera Club at Kidderminster, England, to be held from March 1st to 15th. A prospectus accompanied the communication.

A letter was read from the New Orleans Camera Club extending the use of their rooms to visiting members of the Philadelphia Society. The secretary was authorized to acknowledge the invitation with thanks.

The annual report of the treasurer was presented showing a cash balance on hand of $820.68.

The annual report of the Executive Committee was read giving a resume of the work of the Society for the past year. A number of valuable additions to the library had been made, and a considerable sum expended for binding of journals, etc. Principally through the efforts of Dr. Ellerslie Wallace a complete catalogue of the library had been prepared, and was now ready for the printer.

Reference was made to various papers read before the Society, to the Third Annual Joint Exhibition held under the auspices of the Society during the month of April, and to the Fall Competitive Exhibition, now in progress, from which the Honor Pictures for 1889 would be selected.

The Committee on Membership reported the election of the following active members: Gustavus Cook, Alfred J. Kippelmann, Ewing L. Miller, Charles P. Sherman, and Henry Whiteley.

The Committee on Lantern Slides reported as follows: At the Conversational Meeting, held December 18th, the Interchange slides shown were those of the Syracuse Camera Club. This organization was admitted to the American Lantern Slide Interchange only this year, and their first contribution was certainly creditable to the members of the Club, and a pleasure to the members of this Society who saw them. There were seventy-six slides in all, most of them on gelatine dry-plates, and represented a wide stage of subjects, including some fine studies in Europe by J. M. Winter, Jr., Dr. Wasse, and F. W. Marlow, and several views in the Rocky Mountains by C. E. Lippe. John R. Clancy's slide entitled "Anthony" pictured a superb lion, and the same gentleman showed several novel balloon views. Slides by Arthur Beebe, W. H. Olmsted, and Fred. Frazer were also worthy of special mention.

Dr. Charles L. Mitchell gave the members a treat by showing fifty excellent slides, on gelatine plates developed by eikonogen, from negatives by G. E. Essig, of this city. The views were chiefly marine studies, made with a Hawkeye Detective Camera, and the cloud effects in most of the views were exquisite. Some of the latter were most striking and unusual. Slides were also shown by Percy Marcellus, Frank S. Lewis and Edmund Stirling.

Your Committee beg leave to suggest to the Society the propriety of having a public exhibition of lantern slides either during the coming month, or in March. The Society's public lantern exhibition in 1889 was given during the Joint Exhibition in April, so that your Committee has nothing to report in that respect.

The suggestion in the report to hold an exhibition of lantern slides was brought up by Mr. Browne, who moved that the Committee be requested to arrange an exhibition of lantern slides at their early convenience. Carried.

The election for Officers and Committee for 1890 resulted as follows:

PRESIDENT.—Frederic Graff.

VICE-PRESIDENTS.—John G. Bullock, Joseph H. Burroughs.

SECRETARY.—ROBERT S. REDFIELD.

TREASURER.—Samuel M. Fox.

EXECUTIVE COMMITTEE.—(3 to be elected).—Ellerslie Wallace, M.D., Charles L. Mitchell, M.D., Edmund Stirling.

COMMITTEE ON LANTERN SLIDES.—Edmund Stirling, Frank Bement, William H. Rau.

COMMITTEE ON EXCURSION.—Samuel Sartain, John Carbutt, W. D. H. Wilson.

COMMITTEE ON MEMBERSHIP.—Henry T. Coates, John Bartlett, George Vaux, Jr., David Pepper, Edward W. Keene, Joseph H. Burroughs, Charles L. Mitchell, M.D., Frank Bement, W. H. Walmsley.

COMMITTEE ON REVISION OF MINUTES AND ARTICLES FOR PUBLICATION.—John C. Browne, John G. Bullock, Robert S. Redfield.

The vote for the Honor Pictures for 1889 resulted in the selection of these four pictures:

No. 15.—" Hesitation," by Robert S. Redfield.
No. 32.—" A Fair Quakeress," by Clarence B. Moore.
No. 31.—" A Wayside Spring," by Dr. Charles L. Mitchell.
No. 36.—" Making Friends," by Robert S. Redfield.

A paper prepared by Dr. Charles L. Mitchell and Mr. John G. Bullock on the " Dangers of Flash-Light Compounds," was read by Mr. Bullock.

Adjourned.

ROBERT S. REDFIELD, *Secretary.*

CONCURRENT DEVELOPMENT AND FIXATION.

[*A Communication to the Photographic Club.*]

YOU will remember that at our last meeting Mr. Davis stated that a friend of his had witnessed the development and fixation of a bromide of silver gelatine plate in one single solution. There seemed to be no one present who had any knowledge of this matter, and it had to be left as a question needing investigation.

I have no doubt that most of us then present were of the opinion that if such concurrent development and fixation were possible, it would possess very little practical value, and to that opinion I still hold, though I have subsequently proved that it may be done.

Last Friday evening I was thinking over the problem, and it occurred to me that I had the means at hand by which it could be accomplished. It was our friend Mr. Wellington's redeveloper that seemed to promise to be the very solution to answer the purpose, for it contains *two* fixing agents and a pyro developer.

I have already spoken here of a slight modification of mine of this method of intensification, which somewhat simplifies the operation. I take first a solution of nitrate of silver, 100 grains to five ounces of water; second, 240 grains of ammonium sulphocyanide to five ounces of water; and third, 240 grains of hyposulphite of soda to five ounces of water. These can be kept separately any length of time, so far as my experience during the present year allows me to judge. To redevelop an already developed and fixed plate, either gelatine or collodion, take a drachm of each solution and put in one measure in the above order, and add thereto twenty minims of a ten per cent. solution of pyro (say sulpho-pyrogallol), and twenty minims of a twenty per cent. solution of ammonia. This may be poured on and off the plate as in the old days, a little glycerine making the adhesion to the plate more complete.

Now, in regard to the concurrent developing and fixing, I thought I should attain the object more certainly if I added a larger proportion of ammonia pyro in the first instance, so as to start the development before the fixing agents could have time to act, so as to reduce the part which had received the image. I therefore took a drachm of each of the five solutions, and added enough water to make it cover a quarter-plate. Taking the first negative which came to hand, a weak one, as you may judge by the positive, I exposed it thirty seconds and put it into the solution. It did not develop as rapidly as usual, and the fixation was somewhat prolonged on account of the weakness of the fixing portion of the solution. There was an appearance of fog, which was due in some measure to the thinness of the negative, and a considerable amount of non-adherent silver was thrown down on the plate and the dish, which I sponged away. To test if the image was really fixed, the plate was partially immersed for some time in hypo, which had no further effect. This plate is marked No. 1.

The next experiment was to see if the development would take place when the pyro ammonia was added to the fixing agents without the presence of the silver nitrate. The silver was omitted, and the plate soon became quite clear glass without the trace of an image. It thus seems that this method of development demands silver in the developer, in a manner analogous to that known to all collodion workers in all processes where the alkaline system was not used. It will be seen also that by the dissolution of the bromide of silver by the fixing agents, the solution becomes somewhat like Mr. Howard Farmer's intensifier, and development goes on after the fixation has been effected, as, indeed, might have been anticipated from the known use of the solution as a redeveloper.

The second example was treated in the same manner as the first, except that it was exposed half the time, and was not developed so long, and is therefore thinner, though it is probable that a longer immersion would have given greater density.

I regard this as simply a photographic curiosity, for I cannot detect anything in the process that promises improvement upon previous methods; indeed, it seems to point the other way, for the time of developing is considerably increased, and I should say that the separate solutions would do the work in a shorter time. Those who have time and taste for experimenting will doubtless find the matter interesting, and we may yet hear more of it.

W. D. RICHMOND.

WHY is a hen immortal? Because her son (sun) never sets.

WHY have domestic fowls no future state of existence? They have their next world (necks twirled) in this.

NEGLECTED PROCESSES.—WHY ARE THEY NEGLECTED?

IN a number of articles which have appeared in these columns of late, we have directed attention to several disused processes which are capable of yielding excellent results, in some, such as are not to be equaled by other methods. In this series no allusion has bern made to some which have become obsolete on account of being superseded by others, by which the same or similar results may be obtained by better or simpler means; nor has it been intended to include every means by which excellent photographs can be produced, though not at present used.

There are many systems—and useful ones, too—which come under the title of the iron processes, as well as other interesting ones of Herschel, Hunt, and other workers. These, by which a great variety of colors may be obtained, are well worth the attention of experimentalists, though they have seldom been alluded to of late years, with the exception of the ferro-prussiate and the platinotype, both of which are iron processes. An ardent experimentalist in these very early methods was Mr. Michael Hannaford, who, over a quarter of a century ago, produced excellent prints by several of them, and described the methods he adopted before the late South London Photographic Society, to whom he presented his examples. These are, we presume, now in the possession of the Photographic Club, as at its demise the Society's archives were presented to the Club. These pictures are now exceedingly valuable as proving the permanence, or otherwise, of the processes themselves, or of the modifications of Mr. Hannaford. A description of most of these interesting, if not really valuable, processes will be found in many of the older works of photography—for instance, Hunt's *Researches on Light*, and the various editions of his *Treatise on Photography*, from 1841 onwards—under the heads of cyanotype, chrysotype, amphitype, chromatype, ferrotype, catalysotype, etc. An article on the iron printing processes, with modern modifications, also appears in *The British Journal Photographic Almanac* for 1889.

Many who have read the articles on neglected processes have, not unnaturally, speculated as to why, if they really possess the advantages claimed for them, they have become neglected ones. The question is not an easy one to answer, for there may be, and probably are, several reasons why some, at least, of them are not at present in use. One reason undoubtedly is, that photographers are somewhat conservative, and slow to leave old method with which they are familiar for new ones which they will have to learn, even if the new ones would prove advantageous in the end, particularly when the new departure is a wide one. Notably is this the case with some processes, such as the chromotype of Lambert, the powder, and the stannotype process. In all these the whole system of photographic printing is altered. The materials are unlike those in daily use, and the systems are based upon an entirely different principle from that of silver printing. Hence comparatively few photographers could, or did, devote sufficient time and attention to the subject to acquire the necessary proficiency to work the process with uniformity and certainty—so essential for working on a commercial scale.

In some processes there was but a slight departure from the ordinary methods with which operators were perfectly familiar. The eburneum and the photo-crayon were essentially wet collodion processes, and why they were not more generally practiced, considering the excellence of the results, it is certainly difficult to imagine. The albumen process, again; this is very similar in principle to the wet collodion, yet in England it has been little practiced, though, until the introduction of specially prepared gelatine plates, it was, without doubt, far and away the best method of making transparencies, either for the stereoscope or the lantern. It is true here, too, that considerable skill, which could only be acquired by practice, was requisite to obtain pictures such as those produced by Ferrier and others on the Continent, and few here gave sufficient attention to the matter to acquire that necessary proficiency.

A reason why processes which were undoubtedly good ones and exceedingly valuable were not at once adopted, is that they were introduced at the wrong period, *i.e.*, before their time. Notably was this the case with some of the photo-mechanical processes. For example: the late Mr. Fox Talbot more than thirty years ago produced engraved copper (intaglio) plates by an etching method analogous to, if not indentical with, those now so largely employed commercially, and, what is more, Talbot's work was in no way inferior to that now produced. Paul Pretch, again, about the same period produced intaglio plates and relief blocks in half-tone by methods very similar to those now employed; but these processes, like that of Talbot, did not succeed commercially, as the time was not then ripe for them. The same remark may be applied to photolithography. As far back as 1865 Messrs. Bullock Brothers produced photo-lithographs in half-tone which were quite as good as most of the commercial work issued at the present time, yet the process, good as it undoubtedly was, remained in abeyance as a neglected one for many years.

The chief object of the recent articles has been to direct attention to good and useful processes which are not being employed, and some of which might possibly meet with better practical success if they were reintroduced at another time or under different conditions, as witness the instances just quoted.

Already our articles would appear to be bearing fruit. It will be remembered that in our number for the 22nd ultimo we, when referring to methods of making negatives direct from negatives, gave a brief outline of Mr. Thomas Bolas's method, published in 1880. As will be seen by our last issue, this system was introduced and described as a novelty at the last meeting of the Photographic Society of France. The process, and the method of working it, is precisely the same as that published nine years ago by Mr. Bolas, since which time it has remained in abeyance, now to be resuscitated.—*British Journal.*

WHY was Eve not afraid of the measles? Because she had Ad-am.

IF a tough beef-steak could speak, what English poet would it name? Chaucer (Chaw, Sir).

How is it known that Adam was a provision dealer? He disposed of a spare-rib.

WHAT great Scotchman would you name if a footman knocked at the door? John Knox.

LITERARY AND BUSINESS NOTES.

A HISTORY OF THE SCHUYLKILL FISHING COMPANY OF THE STATE IN SCHUYLKILL; 1732-1888.—Those who are interested in the local antiquities and objects of historical interest in and around Philadelphia, may be already aware of the publication of this volume, which details the history of an organization unique of its kind. We gladly avail ourselves of the courteous permission extended to us, and reprint enough of the interesting contents of the volumes to give a fair idea of the objects for which the Society was founded, and for which it is still kept up. The book is handsomely illustrated with numerous phototypes by Mr. Gutekunst in his best style. There are some reproductions of old manuscripts, portraits, and pictures, and some excellent views of the old "Castle" at Gray's Ferry on the Schuylkill; besides a view of the same time-honored building after removal and re-erection at Andalusia on the Delaware. A number of the negatives for these views were made by a member of our editorial staff, who informs us that he used the Wet Collodion Process, with a preliminary coating of india-rubber applied to the glass to aid in the stripping of the film. Negatives for the phototype process always have to be treated in this manner; and if gelatine plates are used, some similar arrangement for removing the film must be made.

No pains or expense have been spared upon the volume, which may really be called an *édition de luxe*, and will be an ornament to any library. We will select the following extracts from the historical portions of the book, near its beginning:

"'The Schuylkill Fishing Company of the State in Schuylkill' is the present adopted charter name, received on the declaration of its independence.

"It was founded by the name of 'The Colony in Schuylkill,' in the year 1732, by a few of the original settlers, many of them emigrants with Penn to the New World—residents in and near the young and thinly inhabited city of Philadelphia. The Colonial Hall, in which the meetings of the young colonists were held, was judiciously selected in a wood bordering the western bank of the meandering stream, on the estate of William Warner, an amiable and worthy member of the respectable society of Friends. His Estate is now called Eaglesfield; successively since the property of Mr. Robert E. Griffith, recently of Mr. Robert Rundle, and now the elegant seat of Mr. J. J. Borie, is situated between 'Solitude' (Penn's Estate) and 'Sweet Briar,' the seat of Samuel Breck, Esq., about one mile above Fairmount Water Works.

"This well chosen and retired spot, comprising within its fenced boundaries about an acre of ground, was in the peaceful occupancy of the company until the year 1822, an eventful period of *ninety years*, when the damming of the river below, at Fairmount, destroyed the perch and rock fishing, and obliged them reluctantly to leave their much loved primitive domain, and emigrate with the finny tribe to the South, on the shores of tide water, near Rambo's rock opposite Bartram's celebrated botanical gardens.

"John Bartram, the celebrated self-taught philosopher, of whom Linnæus said that he was the greatest natural botanist in the world, was born near Darby, in what was then Chester county, in the year 1701. His grandfather of the same name came from Derbyshire, in England, in 1682. He was the first American who founded a botanic garden, and was appointed American botanist to King George III. The house in which he resided was built by himself. The stone was quarried and the timber prepared by his own hands, and on its completion he dedicated it by the following distich, which he engraved in front:

To God alone, the Almighty Lord,
The Holy One by me adored.
John Bartram,
1770.

"In 1732, the clearings were few between the rising city of Penn and the retreat of the new 'Colony in Schuylkill.' A dense forest of majestic timber, the growth of ages, covered the whole western site of the city plot from its centre, and extended far and wide to the west, the north, and the south. These woods were tenanted by the nimble grey squirrel and rabbit, and frequently pheasants, partridges, woodcock plover, and snipe, and other game of the feathered creation were found in abundance.

"Our worthy sportsmen improved the glorious opportunity so conveniently presented almost at their own doors, and the fowling-piece and faithful dog were the inseparable companions of many members on their occasional trips to their favorite little territory on the banks of Schuylkill.

"The elections were annual, and the expenses moderate. They consisted chiefly in providing a good repast for the electors, after the closing of the poll and conclusion of the ordinary business.

"The viands on these great occasions consisted of substantial fare—rounds of beef, barbacued pig, sirloin steaks, and the productive industry of the angler and the fowler, accompanied with flowing bowls of good punch, lemonade, and Madeira, with the enjoyment of pipe and tobacco, cigars being in those frugal days an unknown luxury to the young colonists.

"Tickets were issued previous to election day to a committee of distribution and collection, for which, at the meeting, they accounted to the treasurer. The holder was entitled to a vote at the poll, and a seat at the banquet, on payment of the tax, which varied from five shillings to seven and six pence."

THE Eastman Dry Plate and Film Co. announces to the photographic public that it has sold its American business, plant and patents, and the same are now owned by the Eastman Company, a corporation organized under the laws of the State of New York, and having its principal place of business at Rochester, and that it has sold its European business, stock in trade and patents, to The Eastman Photographic Materials Company, Limited, a corporation organized under the Laws of Great Britain, and having its principal place of business at 113 Oxford Street, London, England. The new companies will co-operate to extend the sale of the Eastman Specialties throughout the world.

IT gives us pleasure to receive such an excellent magazine for young people as *Santa Claus*. Its tone is elevated and healthy throughout. The illustrations are highly original and artistic. Our energetic and able friend, Mr. H. N. Ballard, of the Agassiz Association, is now connected with the magazine, which is equivalent to saying that its pages will be rendered still more valuable than they were, by his clear and practical articles.

A recent number of *Santa Claus* has the following attractive contents:

Wreckers of Sable Island. Serial Story. Chapter VIII. By J. Macdonald Oxley; The Freight Brakeman's Story, by Wm. Reister Jenkins; Despatching Railway Trains, by Frank E. Blackney; The Old Clock's Midnight Soliloquies, by Charlotte W. Thurston; A Shot at Antelope, by W. J. Beck; A Fireless People, by Gordon Grant; Urashima and the Princess (a Japanese fairy tale), by Joel Benton; Mrs. Brink's Charge, by Bertha P. Englet; The Lights of Falaise, by Charles Prescott Shermon. Also shorter articles by D. M. Morrell, Philip E. Howard, Julia H. Thayer, and Henry Cleveland Wood.

The little children's pages contain stories and verses by Rebecca Cameron, Mrs. C. R. Whidden, Cora A. Lewis, S. F. G. Wilder, and others.

The illustrations this week are by C. J. Budd, Alice Douglas, Jesse McDermott, Lavinia Ebbinghausen, H. A. Kemble, and others.

WE have received the proof-sheets of the Catalogue of the Library of the Photographic Society of Philadelphia. It is high time indeed that this valuable collection of books had been put in order and classified. The Society having started to accumulate these books in 1862, will account for the numerous antiquated volumes pertaining to early processes that are to be found on its shelves. A large portion of these books may thus be said to be quite obsolete in so far as modern practice is concerned; but they are still interesting historically, and will often be found useful to those closer students of the art who endeavor to trace the growth or development of one process from another.

We understand that the present Executive Committee of the Society intend to make the Library a chief feature of usefulness, and to add numerous treatises and text-books to the collection, besides supplying all the best journals for daily reference. Journals pertaining to photography are now in the table cases, and they may be considered as the representative ones of present times; beside the American and English, there are also the German and one French; the latter being the official organ of the Photographic Society of Paris. The Preface to the Catalogue reads as follows:

"It is hoped that the following Catalogue will be useful in aiding those who desire to refer to the valuable Library belonging to the Society, its contents being now for the first time arranged in alphabetical order.

"A noteworthy feature in the Library is the number of complete sets of journals, dating from the earliest days of the art down to the present time. Although separate text-books of the various branches of photographic science are not wanting in the Society's collection, the journals—which detail the progress of the art from day to day—still remain the most useful sources of information.

WE desire to call the particular attention of our readers to the paper on the "Value of Silver Waste," by Mr. George Brinton Phillips, of the firm of Phillips & Jacobs, 622 Race St. We are fortunate in being able to enrich the contents of our present number with this useful and clever article from the pen of a gentleman whose long and honorable experience in refining photographers' residues renders him a master of his subject, and his advice worthy of every attention. The advertisement of the firm of which Mr. Phillips is a member will be found on another page. We hope that the subsequent paper hinted at in his present article may be soon forthcoming.

THE latest thing in photographic circles in Europe, is the establishment of a "Photographisches-Versuchs-Atelier mit Copiranstalt für Amateure," in Moll's Buildings, Tuchlaube 9, which was opened with great eclat on the first of January, 1890.

The new enterprise is under the immediate supervision of Herr Carl von Zamboni, a photographer of over twenty-five years' experience in the larger cities of the Austrian Empire.

In the new institution instruction and information will be imparted to amateurs on any point or subject relating to the art of photography,—from the first rudiments to the most complex formulas in photographic chemistry. A series of dark cabinets and operating rooms, supplied with all the latest inventions and modern conveniences, are at the service of the subscribers, where they can come at any hour for information or experiment, or practical instruction in posing, lighting, exposing, development, printing, and, in fact, the new venture is to be a "Versuchs-Atelier" or "experimental laboratory" in the fullest sense of the word. This, however, is not to be the only feature of Herr von Zamboni's Atelier: a number of copying and enlarging apparatus have also been supplied, and are at the disposal of amateurs. One of these can be so arranged that a subscriber bringing his negatives can see them greatly enlarged on a large ground glass while the attendant manipulates the negatives. There are also facilities for any amateur to make his own solar, bromide or platinum enlargements, or contact prints of any or all sorts, the paper, chemicals, and requirements being at their disposal.

Such amateurs as do not wish to develop or produce their own pictures merely have to send their negatives to the secretary with instructions as to what they want done. The Institute does the rest; retouching negatives and positives, copying, enlarging, or printing in albumen, algëin, aristo and platina, finishing in crayon, water color, and oil, are all prominent features of the new enterprise. J. F. S.

THE New Orleans Camera Club announces that it has opened its rooms, and extends a cordial invitation to all members of the American Lantern Slide Interchange and Photographic Clubs generally to visit them. Letters of introduction from the president or secretary of their respective clubs will insure recognition.

THE current number of the *Photographisches Wochenblatt*, published in Berlin, gives the following directions for making a cheap printing frame, viz.: take any old or spoiled glass negative of the proper size, and cut it in two, then paste a strong piece of black muslin over both pieces; when thoroughly dry this will form a hinge. For use place the sensitive paper on the negative to be copied in the usual manner, then a piece of blotting paper, after which lay the cut negative muslin side up on the paper, and secure the whole with four spring clips or clothespins, and print in the usual manner. Can this be original, or is it not a Yankee idea?

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1—Rustic Wood Chair	5 00
1 copy Photo Mosaics for 1881, in cloth	50
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1 copy About Photography and Photographers	50
British Journal Almanacs for 1889, reduced to	40
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1—Fuming Box	4 00
1—15x18 Deep Porcelain Tray	3 00
1—15x18 Japan Tray	50
1—Iron Centre Camera Stand,	3 00
1—Seavey Swiss Cottage Accessory	12 00
1—8x10 Exterior Ground, good condition,	10 00
2—Spencer Head-rests	5 00
British Journal Almanacs for 1878,	20
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1—8x10 Plain painted ground	3 00
1—8x10 Osborne's interior background, new, light left	20 00
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Pearl leads, the best retouching point in the market, each	15
5x8 Woodbury Dry Plates, PER DOZ.	80
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1—8x10 Hough's Exterior ground, good as new, light left of sitter	$9 00
1—8x10 Hough's Exterior ground, light right	8 00
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1—Osborne's Bridge Accessory	8 00
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1—15 inch Smith & Pattison, Quadruplex Enameler,	25 00

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1—5x8 Novelette Camera and 6 holders	18 00
1—5x8 Tourist Camera, plate holder, tripod, case, and No. 2 Darlot Rapid Hemispherical Lens	27 00
1—4x5 "Midget" Pocket Camera, tripod and 6 holders	18 00
1—8x10 American Optical Co.'s Portrait Camera,double swing	16 00
1—4 x 5 Waterbury Detective Camera, fitted with Roll Holder, and Plate Holder, in good condition,	18 00
1—Woodward Solar Camera, 7-in. condensing lens and ½ size Voigtlander lens	25 00
1—4x5 Flammang revolving back Camera, lens and tripod, new; reduced from $37 to	25 00
1—17x20 American Optical Co.'s Double Swing Portrait Camera, Bonanza Holder, good as new	75 00
1—5x8 Blair View Camera, single swing	17 00
1—Climax Outfit,including chemicals, complete	3 50
1—17x20 D. S. View Camera, good condition	40 00
1—5x8 Tourist Outfit, including 5x8 Tourist Camera Box, 2 Daisy Plate Holders, 1 Extension Tripod, and 1 Canvas Carrying Case, very little used. Price, new, $40.50, will sell for	30 00
1—10x12 Cone View Camera, Double Swing, new	52 80
1—5x8 Wet Plate Stereo Camera, 3 holders, case and tripod	25 00
1—6½ x 8½ View Camera and Lens,	12 00
1—6½x8½ American Optical Co. first qual. View Camera	23 00

1—4¼x5½ Ex. qual. Portrait Camera	17 50
1—5x8 American Optical Co. Stereo Camera	25 00
1—5x8 Blair Compact Camera, good as new	35 00
4—5x8 Feather Weight Holders, each	75
1—8x10 Double Swing Cincinnati Portrait Camera	18 00
1—5x8 '76 View Camera, with lens holder, case and tripod	15 00
1—4x5 Anthony's View Camera, with lens, tripod, camera case and six double holders in good condition	16 00
1—½ size Wet Plate Camera, good for lantern slides	2 00
1—43 B. Climax Portrait Camera 8x10 with Benster Holder,	20 00

Lenses:

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1—4x5 Rectilinear Lens	5 00
1—5x8 Morrison Wide Angle Lens	18 00
1—4-4 Harrison Portrait Lens	18 00
1—6½x8½ View Lens	3 50
1 set ⅛ Tubes	18 00
1—11x14 Zentmayer Lens, with all the smaller combinations	50 00
1—Matched pair E. A. Stereoscopic Lenses	8 00
1—14x17 Voigtlander Portrait Lens	60 00
1—No. 9, 11x14, Ross Portable Symmetrical Lens	60 00
1—11x14 Harrison Double View Lens	15 00
1—4x5 J. A. K. Single View Lens	2 00
1—Extra 4-4 Roettger Portrait Lens	20 00
1—2A Dallmeyer Lens	82 00
1—14x17 Roettger Lens	45 00
1—8x10 Beck Lens, good as new, fitted with Prosch Shutter	55 00
1—set ¼ Darlot Tubes	13 00
1—4-4 Holmes, Booth & Hayden Portrait Lens	25 00
1—½ size Voigtlander Lens	25 00
1—⅓ size L. W. Krantz Portrait Lens	12 50
1—⅓ size C. C. Harrison Portrait Lens	8 00
1—½ size Darlot quick acting Portrait Lens, central stops	18 00
1—No. 6, 17x20 Darlot wide-angle Hemispherical Lens	33 00
1—8x10 Voigtlander Portrait Lens	80 50
1—4-4 Dallmeyer Group Lens	50 00
1—4-4 Walzl Portrait Lens	20 00
1—¼ size Harrison Portrait Lens	5 00
1—½ size Voigtlander Portrait Lens	12 00
1—4-4 Extra Rapid Darlot Portrait Lens,	35 00
1—No. 2 Darlot Rapid Hemispherical Lens,	20 00

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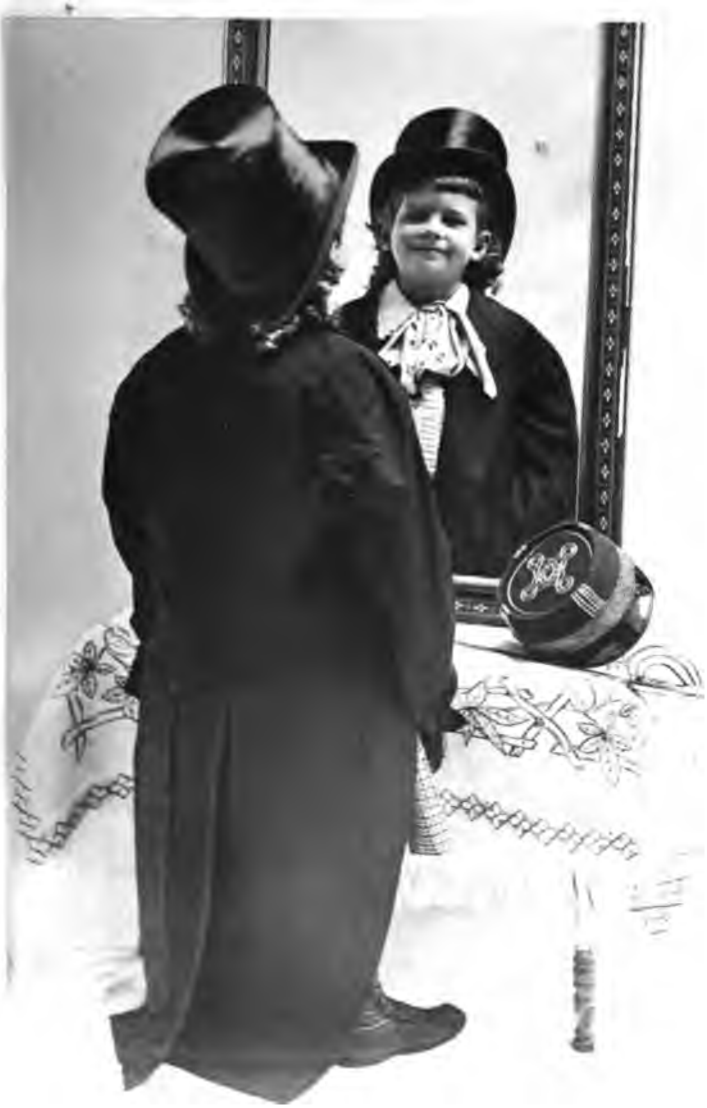

"I'M A BIG BOY NOW."

Negative by Mrs. Julia Cleveland. **Philadelphia.**

AMERICAN ACADEMY
FEB 21 1890
OF ARTS AND SCIENCES.

AMERICAN
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NEGATIVE BY MRS. JULIA CLEVELAND PHILADELPHIA

AMERICAN ACADEMY
FEB 21 1890
OF ARTS AND SCIENCES.

AMERICAN JOURNAL OF PHOTOGRAPHY.

Published by THOS. H. McCOLLIN & CO.

VOL. II. PHILADELPHIA, FEBRUARY, 1890. NO. 2

Edited by JOHN BARTLETT.

WEIGHTS AND MEASURES.

THE metric system of weights and measures, legalized in the United States as long ago as 1866, is coming more and more into use, particularly by students of the natural sciences. Readers of the photographic journals, too, are frequently met by formulæ given in grammes and cubic centimetres, instead of in ounces, grains, and drachms.

Now, from the strictly utilitarian point of view, it would be desirable for the entire civilized world to possess an uniform system of weights and measures, and a coinage or money system likewise uniform in character. Indeed some of our, acquaintance who are very optimistic in their views of life and of things generally, claim that considerable progress towards the unification of weights and measures has been effected by the introduction of the metric or decimal system. We, however, while granting that something had been accomplished, should certainly join issue with them, and deny that the metric system had taken such a very strong hold upon those practical members of the community who are employed in the various industrial arts,—such as, for instance, photographers. For continental Europe the statement that the decimal system was in universal use would be correct; but for Great Britain and its numerous colonies, and for the immense area of the United States, it would be quite the contrary.

It is not to be wondered at that the change from the well-known standards of weighing and measuring progresses but slowly. It is doubtless true that the metric system with its convenient decimals is much better adapted for weighing and measuring than our system is, and also that it is more logical. This would, of course be strongly urged by any one who had been brought up to use the metric system just as we have been to our own. The advantages of having all the quantities divisible by or multiples of ten, would be enlarged upon, at the expense of our own arbitrary system of grains, scruples, drachms, ounces, pounds, and tons. But the advocates of our own system could make out a pretty strong case in arguing in its behalf. For instance, the fact that the standard of the metric liquid measure or cubic centimetre has the standard weight of one gramme is precisely paralleled by our own standard of the minim, which weighs one grain—distilled water being taken as the representative fluid, and the proper barometric and thermometric conditions observed. For the handling of larger quantities of material the metric system might be more convenient, the cubic centimetre being fifteen times the bulk of the minim, but it would not be more accurate. The exact correspondence of the solid and liquid drachms in our own system is also quite as accurate as need be, so that for all practical purposes no fault is to be found with it. In the few instances occurring in photographic practice and in other industrial arts where a formula or recipe had to be very exactly compounded by weight only, and not by the usual method which combines the weight of a given solid with a volume of a given liquid, it would be far easier to counterpoise the bottle on the pan of the scales, and weigh the fluid, than it would be to substitute another set of weights and measures, or, worse yet, attempt to reduce the formula into the terms of another system.

To our minds, the defect of our present system is simply the fact that it consists of a number of separate systems, each of which is quite good in its own way and possesses advantages peculiar to itself. It would lead us too far to detail the reasons why metallic silver, being a noble metal, is bought and sold by Troy weight, while the nitrate, as every photographer knows, is handled by avoirdupois. We hope, and confidently believe, that the days are long past and gone when the purchaser of an ounce bottle of nitrate of silver would imagine himself cheated because the ounce consisted of four hundred and thirty-seven and a half grains, instead of four hundred and eighty. A devotee of the metric system might perhaps adduce this very fact as a great defect in ours, but we could survive the accusation.

It is a very difficult matter to absolutely say which is the more rational and the easier of two methods of dividing and multiplying weights and measures. To divide a substance into two parts so that the halves are equal, is fair and easy, as is also the doubling of the same. The division or multiplication by ten is perhaps easier, save for the troublesome Greek prefixes which have to be remembered in connection with quantities greater or less than the standard.

Those who have ever made a serious attempt to work by the new system of weights and measures have experienced the unpleasant feeling that they were more or less uncertain in those rapid calculations which are so easy by the older and more familiar method. Nothing can be easier than to weigh out so many grammes of any solid substance and dissolve them in so many cubic centimetres of a given menstruum, and the solution so made will work quite as well as if grains and ounces had been employed. But when the one system has been thoroughly learned and practiced by actually weighing and handling the substances, it will be found that the change to another system is awkward and demands the closest attention. The fingers may indeed be busied with the new weights and measures, but the brain will not adapt itself so easily, and will be constantly recurring to the familiar expressions.

We once asked a lady, who had been in France long enough to be well familiarized with the customs of the country, what her idea was of the metre when buying dress silks, and we immediately received the answer we expected, which was that she could not conceive of the metre as a quantity in itself, but as a compound quantity, so to speak, consisting of a yard or thirty-six inches, with an addition of three inches besides.

In like manner, to all of us who have been brought up to use the American system, the terms pound, ounce, and drachm convey a distinct idea, while the terms of any other system do not. Even when well acquainted with the new method, the mental attempt will involuntarily be made to reduce the quantities dealt with to their equivalents in the more familiar style, so that instead of conceiving of two grammes as two grammes, it will always be thought of as thirty grains.

We are not in the least desirous that anything that we have said should be construed into an attack upon the metric or decimal system. The clear and scientific conception of the metric system ranks high among the efforts of human ingenuity. A great deal of useful and entertaining information will be obtained by a perusal of its history. The accuracy of calculation and patience required may be well imagined when we remember that the standard metre is the ten millionth portion of a quarter of the terrestrial meridian, or in other words of an imaginary arc extending from the equator to the pole; and that the litre or unit of capacity is the cube of one-tenth of the metre. Any good encyclopedia will give explanations of the metric system in full, while more condensed accounts will be found in works on pharmacy and the *materia medica*. But those who like to combine amusement with instruction will learn a good deal about the new system, and be greatly entertained at the same time, by reading Jules Verne's novel called "Meridiana," which describes an imaginary trip to the sandy deserts of Africa, undertaken for the purpose of obtaining accurate measurements of the terrestrial meridian. Few books are better suited to while away a winter's evening in an instructive and agreeable manner.

ELLERSLIE WALLACE.

LOCAL INTENSIFICATION AND REDUCTION.

THE question of local intensification or reduction of certain portions of a negative has always been a problem which at some time or other has confronted the professional as well as the amateur photographer. Many are the suggestions which have at various times been set forth, to overcome the local difficulty; most all, however, without proving of practical value in the hands of the amateur with average experience, no matter how successful the process might be in the hands of the experienced operator who promulgated the formula. Most amateurs who have occasion to experiment with either intensification or reduction of negatives, as a rule generally conclude that the suggestion "to get the time right and then develop properly," is the best and safest plan to obtain plates of the proper density.

Cases often arise, however, with old and experienced operators, where a local check in the development of a plate would prove of the greatest service if it could be done.

This subject, as well as the local applications first mentioned, have, of late, attracted much attention in photographic circles in Europe, and culminated in an exhaustive paper, which was read before the "Society of Photographic Co-Laborers" in Vienna, by Herr Hans Lenhard, instructor in the Imperial Lehr-and Versuchsanstalt.

In connection with this subjeet, the January number of the *Photographische Rundschau* of Vienna, publishes an interesting communication from a correspondent, Herr Anton Einsle, giving the results of over two years successful practice and experiment.

The process of a local check during development looks so simple and practicable that almost any one with average experience in photography should be able to reach the desired results. The two other formulas described in the article we would hardly advise the amateur to experiment with, unless it were with some valueless negatives. The writer in the *Rundschau* states that cases occasionally occur even in well-timed pictures,—resulting from cloud masses, roofs, large masses of rock, or some glaring white subject prominent in the foreground, or the sky in a landscape, while in interiors, halation from any cause, or some white object prominently located in the room, such as a white marble mantelpiece, etc.,—where it would be desirable to locally check the development of the negative, so as to prevent too great density in certain parts of the picture, which would make the negative valueless. To overcome the difficulty and recover the negative, where it is suspected that local retardation is necessary, the plate is placed in the tray and the developer (immaterial what kind) is then poured over the plate in the usual manner; when the high lights come up plainly, the plate is taken out of the tray, and well washed under the tap or well rinsed off in clean soft water; it is then placed in an ordinary negative rack, and left there from five to eight minutes until it is thoroughly drained; the film now shows a matt gloss, somewhat similar to an orthochromatic plate before it is developed. The negative, after being drained, is laid on a convenient shelf or table, and such parts as would become too dense with continued development, are treated with a saturated solution of bromide of potassium; this is applied with a soft camel's hair pencil; after letting this solution act upon the film for two or three minutes, the plate is again well washed, after which the development may be continued to the desired point. The result, if intelligently done, will be a soft, harmonious negative, of good printing quality.

Local or partial reduction. Negatives (no matter how long they may have been developed), if they are too dense in certain places, are to be laid in clear, soft water for about five minutes, until the film is uniformly wet, then remove the superfluous moisture with a piece of filtering paper, then place the plate in an ordinary printing or retouching frame so as to lie perfectly level, and so the light will show through the negative, then moisten the parts to be reduced with the ordinary hypo fixing solution (1 : 4); this is also done with a soft brush pencil. After which carefully drop on more hypo, using a pipette or medicine dropper for the purpose, until the hypo stands all over the space to be reduced; then drop a single drop of concentrated solution of red prussiate of potash in the hypo on the plate. This will immediately assimilate with the hypo and reduce the space evenly and rapidly. As soon as the desired degree of reduction is attained the plate is quickly immersed in a tray of water. Any person trying this experiment must bear in mind (1), that the first painting with the hypo must be carefully done; (2), after the hypo is dropped on the slightest shaking will cause it to overrun its bounds; (3), that the red prussiate of potash is a strong poison; (4), not to experiment at first with a valuable negative.

In local or partial intensification, the preliminary proceeding is similar to the former one. After the surplus moisture is removed, the parts to be intensified are first painted with a saturated solution of bi-chloride of mercury, then more is carefully added with the dropper, care being taken that it does not overrun the bounds, and given time until the parts become a grayish white color; the plate is then well washed and dipped in a tray of either ammonia and water, or a solution of sulphite of soda. In either case the portions acted on by the mercury become a dark brown or black. The same remarks in regard to the former process apply to this one.

Herr Einsle, in the *Rundschau*, promises in the near future to furnish additional information on the subject, which we shall lay before the readers of the JOURNAL as soon as it comes to hand.

J. F. S.

THE SILVER PRINTING BATH.

Read before the Photographic Society of Philadelphia.

IN the sensitizing of paper for the purposes of photographic printing, the exciting or sensitizing bath is one of the most important features of the process, hence a few notes concerning its preparation and preservation may not be out of place.

The usual method of making paper of any kind sensitive to the action of light is, after having previously impregnated it (or "salted" it, as it is termed) with an alkaline chloride, to float it for a varying length of time on a solution of silver nitrate. This solution is called the silver "bath," and consists of silver nitrate dissolved in water, with or without the addition of other substances, the strength of the solution varying from 35 to 60 or 70 grains of the nitrate to the ounce. The precise strength necessary to produce the best results depends upon the amount of chloride used in salting the paper, but for the several brands of paper now found in the market, both plain and albumenized, a strength of 50 grains of silver nitrate to the fluid ounce of water will be found to be a safe average.

Silver baths may be divided according to their composition into three classes.

The first class comprises such formulæ as direct the use of only the silver nitrate and water. A bath made according to this plan, and containing from 50 to 60 grains of silver nitrate to the ounce, is used at the present time by a large number of professional photographers, and is capable of producing excellent results. It is not apt to discolor with use, and by occasional purification, as afterwards to be described, will last for a long time. It should be kept slightly alkaline in reaction, as the presence of free acid would be apt to act injuriously on the paper. This can be done by the occasional addition of a few drops of ammonia, or, still better, of a small quantity of a strong solution of sodic carbonate. The resulting precipitate of silver carbonate soon settles to the bottom of the vessel, and tends to keep the bath clear by carrying down with it any floating organic matter.

The second class is represented by the old ammonio-nitrate bath. This was formerly in great favor among photographers, and, although to a large extent superseded, still has some great advantages, particularly when used in the preparation of silver prints on plain paper. It is prepared as follows: The silver nitrate is first dissolved in the proper quantity of water; two-thirds of this solution are then placed in a separate vessel, and strong ammonia added, drop by drop, until the precipitate of oxide of silver at first formed is completely dissolved; the remaining third of the solution is now added, and as this causes a slight precipitate again, pure concentrated nitric acid is added cautiously, drop by drop, until this precipitate is just re-dissolved.

Although increasing the sensitiveness of the paper and deepening the intensity of the prints, this bath is apt to more easily discolor with use than the previous bath, owing to the separation of free organic matter and albumen from the paper. For prints on plain paper, however, it is particularly adapted, and will give results not equaled by any other method, the prints having a rich velvety appearance. Paper sensitized on this bath does not need to be fumed.

The third class comprises baths which, in addition to the silver nitrate, contain also an alkaline nitrate, such as the ammonium, sodium, or potassium salts. These salts act as absorbents of free chlorine, and also serve to prevent the paper from becoming excessively dry in hot weather. The following formula may serve as a type.

Silver nitrate	60 grs.
Ammonium, or sodium nitrate,	60 grs.
Water	1 oz.

Render slightly alkaline with carbonate soda, or with ammonia. A few grains alum are also sometimes added for the purpose of preventing blisters. This bath gives excellent results with albumen paper, and for this purpose is probably to be preferred to either of the preceding formulæ. For plain silver prints it is much inferior to the ammonio-nitrate bath, and the prints seem to lose considerable strength during the preliminary washings before toning. Paper sensitized in this bath also requires to be fumed before printing.

In sensitizing albumen paper in these different baths, the paper should always be "floated," as it is termed, an operation sufficiently familiar to all photographers to require no description. Plain paper may be either "floated," or the paper may be laid flat on a clean sheet of glass, and the sensitizing solution applied to the *salted* side by means of a clean swab of cotton flannel, or a camel's-hair brush.

It may be remarked here that paper sensitized in either a bath of the first or the third class should always be fumed; with those of the second class it is not necessary. In printing, also, the sensitized paper from the former must be printed much more deeply, as they seem to lose a great deal of intensity in the subsequent washings. In the preparation of plain silver prints with the ammonio-nitrate bath, the writer has found such a small percentage of silver in the wash waters that but a slight reaction would be given to the ordinary tests of silver, thus showing that nearly all of the silver salt remained fixed in the paper, and consequently tended to deepen and intensify the print.

Having now briefly discussed the different forms of the silver sensitizing bath, it remains to say a few words regarding its care and preparation. First, as every sheet of paper sensitized robs the bath of so much silver, its loss must be made good, or in a short time the bath will cease to work properly. The bath must therefore be strengthened from time to time, and this is generally done after each day's work by adding an amount of fresh nitrate of silver corresponding to the quantity abstracted from the bath, thus maintaining it of a uniform strength. The usual practice is to allow about fifty grains of silver nitrate for each sheet of paper sensitized, and if the amount of silver corresponding to the number of sheets used is dissolved in a few drachms of water and added to the bath, and then the bath exposed to the light for a while, it will continue to work satisfactorily for a long time. The hydrometer is also used for determining the strength of the bath, it sinking to certain marks corresponding to the number of grains of silver nitrate in each ounce of the solution. This answers very well for a solution of silver nitrate in pure water, but as the bath soon becomes contaminated with soluble salts and organic matter, the density of the solution increases, and the readings of the hydrometer in consequence soon become incorrect. The chief source of contamination to the bath is from organic impurities carried into it from the paper, in time causing a brownish or reddish discoloration of the solution. This must be removed, since paper floated on such a bath is unevenly sensitized and darkened. Several methods of purification have been proposed. One is to add a small quantity of kaolin to the bath, which is then well shaken up and allowed to stand in the sun. The organic matter is carried down by the kaolin as it subsides, and, after filtration, the bath is again ready for use. Another method is to add a small quantity of a strong solution of potassium permanganate to the discolored bath, and decompose the organic matter by its oxidizing properties. This is immediate in its action, and quite effective, but is open to the objection of introducing extraneous salts into the bath. Another plan is to add a few drops of hydrochloric acid, or still better a small pinch of salt, and the chloride of silver thus formed, in settling to the bottom of the vessel, carries all impurities with it. The best method, however, is to add a small quantity of a saturated solution of sodium carbonate, and then set the bottle containing the bath in strong sunlight. The action of the sunlight oxidizes the organic matter, and the carbonate of silver formed carries it down as it settles to the bottom of the bottle.

Should it, however, be found impossible to purify the bath by this means, the next resource is to the process of "boiling down," as it is termed. A porcelain capsule, or still better an enameled iron dish of convenient size, having been procured, the refractory bath is poured into it, and then placed over a gas stove and gently boiled down to dryness. The heat is then increased until the contents of the dish are in a state of fusion and completely liquefied. The heat is continued for a short time until all organic matter has been thoroughly carbonized, and then stopped, and the dish and its contents allowed to cool, the latter dissolved in distilled water and filtered. The filtrate is then made up to the original measure of the bath with distilled water, and a drachm or two of fresh silver nitrate added to make up for waste and loss.

It happens, however, in course of time that the silver bath becomes so clogged up with soluble salts, such as the ammonium, sodium and potassium chloride and nitrate, resulting from the chemical reactions occurring during sensitizing, that the bath will no longer work. It must, therefore, be set aside, a new bath prepared, and the silver recovered from the old bath.

If the bath has been made according to the first or third class, all that needs to be done is to render the bath acid with nitric acid, and then add a strong solution of washing soda until the white precipitate of carbonate of silver ceases to be formed. This is allowed to settle, the supernatant liquid poured off, and the precipitate washed repeatedly until the washings are free from color, and all soluble salts have been removed. The precipitate is then drained on a filter, and the moist mass, filter and all, is placed in a dish of porcelain or enameled iron, and dilute nitric acid (1-10 of water) added until effervescence ceases, and the white precipitate is nearly entirely dissolved. This solution is then filtered and evaporated, first to dryness, and then heated to calm fusion, and allowed to cool. The resulting semi-crystalline mass may be considered a pure silver nitrate, and when weighed will indicate what amount of water is to be added to form a bath of the proper strength.

If the old silver bath, however, is prepared according to the ammonio-nitrate formula this method will not answer, as in the presence of the ammonia salt not all the carbonate silver can be precipitated. The best plan is, therefore, to acidify the bath as before with nitric acid, and then add salt until all the silver is precipitated as chloride. This should be well washed, collected on a filter and dried. It may then be converted into pure metallic silver by fusing it in a crucible with powdered charcoal and nitrate of potassium, or it may be placed in a vessel containing dilute sulphuric acid (1-20 or 1-30 of water) and metallic zinc added. Metallic silver will be precipitated in a very finely divided state and the zinc dissolved. From this silver the nitrate can be prepared by dissolving it in dilute nitric acid and then proceeding in the same manner as described for the carbonate of silver.

CHARLES L. MITCHELL, M.D.

GENERAL NOTES.

WE have been favored with a "Souvenir of Photo-Art-Printing for 1890," issued by Mr. Fdk. Gutekunst, of 712 Arch St., Philadelphia, which well illustrates the great strides made in America towards perfection in the photo-mechanical art. The souvenir contains twelve plates in an illuminated cover,—each plate being an artistic gem in the special department which it is designed to illustrate; for chasteness and beauty, as well as mechanical execution, we have never seen this collection of prints surpassed in this country; the tones and colors being equal to the best Parisian specimens which have come to our notice.

For the benefit of our readers we will describe the plates in detail. The covers are of a soft-tinted, embossed paper. In the centre a white medallion five inches in diameter contains an exquisite bird effect,—one a sea-gull in the act of descending, with fine cloud and water effects; on the rear cover a chirping blackbird, with sprays of grain and flowers as reliefs.

The main title, in black, beside the name of publisher and address, shows medallions of marine, mechanical, art, architectural, and landscape effects, while in the upper corner appear the well-known portraits of ex-presidents Grant and Cleveland.

In the next plate we have a group of Pennsylvania Railroad scenes; the chief views, Sentinel Rock, Susquehanna Bridge, Roaring Spring, and the well-known Horse-Shoe Curve, are all printed in sepia, and form a pleasing contrast to a view of New York Harbor in a dark French blue. In the centre, within a keystone, we have Broad Street Station in an Indian red tint, while two ovals on either side show the Iron Spring, Cresson, and Bedford Springs in a rich green, while a panel at each corner with railroad scenes printed in a soft gray completes the well-blended picture.

The next plate, a fine European view printed in a dark green tint, shows a castle in strong relief against a wooded hill, with a purling stream in the foreground.

Plate III.—An architectural study, in a warm shade of brown, of a modern shingled cottage residence standing on an elevation.

Plate IV. is an Alpine scene, with glacier and snow-effects. The tint is a very dark blue, and the result exceptionally fine.

Plate V.—In contrast to above we have a West India scene,—a study in sepia,—from a drawing by F. W. Taylor.

VI.—A photogravure of a painting of the Dutch school,—a picture of contentment,—showing an old burgher with his paper, pipe, and mug of beer.

. The next plate, three specimen portraits from the gallery of Mr. Gutekunst, Walt. Whitman, P. T. Barnum, and J. H. Heverin, well illustrates the superscription from Jefford: "Countless the various specimens of mankind."

The next plate, a large portrait of the late Thomas U. Walter, the architect of the Capitol at Washington, is another specimen of the publisher's art photography.

A group of happy school children, evidently an instantaneous effect in a street in Philadelphia, forms the next gem.

A portrait of a child, in black, with a sprig of moss roses and lilies of the valley in colors, completes the souvenir.

It is seldom that a publication of this kind is gotten up with such refined elegance. We hope to be able to present the readers of the JOURNAL with a specimen illustration during the current year.

Mention is made, in the article on local intensification in the present number of the JOURNAL, of the "Imperial Lehr- and Versuchsanstalt," in Vienna. For the benefit of our readers we will state that this institution, established under the sanction of the Imperial Government of Austria, gives instruction in practical photography in all of its branches. Special attention is given to the process of reproducing old engravings and paintings. We understand that some excellent results in this department have been reached by the students of the institution, a noteworthy example being a series of copies of "Holbein's Dance of Death," fifty-three in number, the work of Herr Anton Einsle. Another feature of the above institution is the practical instruction in all kinds and processes of contact printing,—photolithography, zinc etching (zincography),—but more particularly heliogravure, or, as it is known in this country, the photo- or collotype process, which, on account of the beautiful results attained, has induced many of the leading amateurs of Vienna to enter for a course of instruction, it opening a rich field to many enthusiastic amateurs who have more means and time for photographic experiment than the average professional.

J. F. S.

A METHOD of photo-engraving direct on wood is announced from Russia. The wood is boiled in a solution of sulphate of copper, and afterwards in a solution of carbonate of soda, which fills the pores with insoluble carbonate of copper. The block is then dried, its face brightly polished, and the sides and back coated with asphalt varnish. The face is coated with bichromated gelatine, and after printing is developed with warm water, as in the carbon process. A coat of asphalt varnish, carefully applied, adheres only to the portions from which the gelatine has not been removed. The block thus protected with varnish is placed for an hour in strong nitric acid, and then for an hour in strong sulphuric acid. When taken from the acid the unprotected parts of the wood will be found to be eaten away, and the block may be cleaned by rubbing with a hard brush. The varnish on the face is removed by soaking in benzine, and the block is at once ready to print from.

IN the current number of the *Photographische Notizen*, edited by Dr. H. W. Vogel, we find a notice of a new attachment to the tripod, the invention of E. Leutner. It is for the purpose of setting the camera level and plumb in all situations without the trouble of lengthening or shortening the different legs of the tripod, by which much valuable time is often lost to the operator. If this invention is practicable, which we have no doubt of after Dr. Vogel's endorsement, it will be hailed with delight by all amateurs. Our notice states that it is made in two forms—one for tripods with a loose metal triangle, the other where the top is stationary or of wood. S.

THE RESEMBLANCE OF MARRIED COUPLES.—It has long been accepted as a fact that married couples, who are not only exposed to the same conditions of life, but the influence of whose minds must necessarily react upon each other, assume more or less facial resemblance to each other. The Photographic Society of Geneva, Switzerland, with a view to determining this question, have made photographs of seventy-eight young couples. The result is that in twenty-four cases the resemblance in the appearance of the husband and wife was greater than that of brother and sister; in thirty cases it was equally great, and in only twenty-four was there a total absence of resemblance.—*New York Commercial Advertiser.*

CINCINNATI MUSEUM ASSOCIATION ART ACADEMY.—Dr. A. Le Boutillier gave a lecture on "The Value of Photography in Modern Art," illustrated with Stereopticon views, in the lecture room of the Art Academy, Eden Park, Saturday evening February 1st, 1890.

Cincinnati Museum Association Art Academy announce a special course in etching and photography, to begin February 17th, 1890, at the Art Academy, Eden Park. These classes are open to all students of the Academy, and others who may wish to enter. A. T. GOSHORN, Director.

LYNN CAMERA CLUB dedicated its new rooms, January 23, 1890, at 42 Broad street, Lynn, Mass. On the first floor is the banquet hall; in this Prof. Elihu Thomson made a fine display of photographs made on his last summer's trip to the Paris Exhibition. In the large drawing-room on the second floor there was a large exhibition of prints. Several gentlemen exhibited a number of fine views, as follows: Mr. Batcheller, views of the recent great fire in Lynn; Mr. Darcy, mountain and Lake George scenes; Mr. Bramhall, landscape in Madeira; Dr. Williams, California views; Mr. Russell, yachting scapes; one point in particular deserving mention was a view of the flag-ship *Chicago* as she lay in Boston harbor, showing plainly the smoke from the Lynn fire in the distance. Miss Appleton, a lady member, had a grand display of work done while on a tour the past summer. An interesting feature is a neatly and convenient dark-room for the use of the members. We understand the whole establishment is one of the finest fitted up photographic club rooms in the country. We wish the club a long and prosperous career. One feature we heartily approve of,—the admitting of ladies as members, and on equal terms with their brethren,—which may well make some of our older photo societies blush with shame.

THE annual reception of the American Water Color Society was given to-night at the National Academy of Design. This was preceded by a press view of its twenty-third annual exhibition, which will be opened to the public on Monday. There are 645 water color pictures exhibited. Nearly all of them are well hung, and, as a whole, they are a feast to the eye. Among the exhibitors are E. A. Abbey, who presents a landscape with figures; W. T. Smedley, who shows three pieces; W. H. Gibson, who exhibits as many as thirteen small studies of out-door scenes; Walter Shirlaw, T. de Thulstrup, Bruce Crane, Percy Moran, Charles M. Dewey, S. R. Wills and F. S. Church. The general impression made by the whole collection is an unusually pleasant one. The number of pictures which, like Abbey's, challenge the attention, is not many, but there is in nearly all a quiet beauty which is at once restful and pleasing, and which gives a charming general effect to the exhibition.

THE art illustration in the *Photographische Rundschau* for January is exceptionally fine—"Brechtesgaden," an Alpine scene from negatives by Fomm, the printing by Obernetter of Munich. The gradual shading of the deep shadows of the foliage in the centre of the picture to the light gray tint of the atmosphere, with the high lights in the foreground, shows a richness of tones rarely seen in a photograph.

THE advent of a daily illustrated newspaper is an event that may at first sight appear to have but little connection with photography; and yet it is unquestionably true that but for photography and the automatic processes of engraving which photography has inaugurated, a daily newspaper giving illustrations of the events of the day would remain an absolute impossibility.—*The Camera.*

THE question whether a photographer who takes views or portraits at a place distant from his regular residence is subject to local license laws, or to tax as a peddler or traveling salesman, is causing much discussion on the continent at the present time, and has called forth numerous opinions pro and con in the public prints. The accepted conclusion (*Photo-Zeitung*, No. 51) seems to be that where a photographer receives an order to come to a certain place or town to take the pictures, either landscape or portrait, and afterward delivers them, he is not liable to the law. Should he, however, go to any place distant from his residence and practice his art in any manner, and there solicit orders, he would be liable to the local laws governing peddlers or other solicitors of trade. S.

OUR well-known contemporary, the *British Journal of Photography*, has frequently done us the honor of reprinting from our columns, and we find our article on "Photographic Theorizing," which appeared in our December number, in full in the issue of January 10th. Had we been asked which of our articles would *not* have been acceptable to English readers, we should have mentioned this particular one, because we did some pretty plain speaking in it. The editor of the *British Journal* seems to think differently, however, and is evidently sure that the criticisms contained in our article were made in no unkindly spirit. We need hardly add that his opinion is quite correct.

A FEW days before the present number of the JOURNAL went to press, our editorial labors were very pleasantly interrupted by a visit from Mr. Charles R. Pancoast, an amateur of experience and culture. Mr. Pancoast became a member of the Photographic Society of Philadelphia as early as 1876, the year of the Centennial, and still continues his active interest in the organization, although no longer a resident of this city.

In the course of a lengthy chat with this gentleman, he mentioned some interesting matters. One of these, that will doubtless commend itself to those of our readers who desire to work economically, and yet make an agreeable variety, was the making of a depressed edge around the print on the mount. Etchings and similar pictures of the kind are often seen with this ornament, and it may be quite easily and neatly imitated on a paper mount; cardboard would hardly do, being too stiff. An office copying-press is the thing necessary, and the mount carrying the print is simply laid in proper position under the descending portion, with a card or metal shape having suitably rounded corners laid over it. A few turns of the screw at the top finishes the operation.

Simple as this seems, failures may still occur from carelessness in adjusting the shape over the print. If a number of prints were to be thus made, a duplicate form or shape could easily be cut in glass; this might be adjusted with great accuracy over the print, and the corners marked lightly with a lead pencil. The card or metal form now being substituted, the pressure would be applied as usual, and the pencil marks afterwards removed with bread-crumb.

It should not be forgotten that if a rough-surfaced paper is employed, the portion pressed upon will be rendered considerably smoother.

ANOTHER and far less agreeable matter was spoken of by Mr. Pancoast. He told us of a crystalline deposit which had formed on the inside of the cover-glasses of lantern-slides, and in some cases on the outside of the slide itself. The slides had invariably been kept in a perfectly dry place, in wooden drawers made expressly for the purpose. We know Mr. Pancoast's neat manipulation well enough to be sure that this disagreeable phenomenon was owing to some circumstances over which he had no control. Another curious point in this matter is that the deposit showed a tendency to reappear even after remounting. The exact chemical composition of these crystals has not yet been ascertained, but the same complaint has reached us from a number of sources.

Further than advising general cleanliness to be observed in all the details of slide-making, we know of nothing to suggest at present by which the trouble may be avoided. Should any of our readers meet with this unpleasant experience, we invite them to communicate with us about it.

IN speaking of the uses of the larger sized plates as compared with smaller ones, Mr. Pancoast alluded to the great convenience of the "changing-box" for the smaller sizes. We are well aware that this useful piece of apparatus is not much in vogue in America, and we have always regretted the fact. For the benefit of those who have never seen the apparatus in question, we may briefly describe it as a grooved plate-box with a specially constructed plate-holder which slides on the top parallel with the grooves. The action of sliding on the holder automatically opens the slots covering the groove in which the sensitive plate rests, which latter is made to pass into the holder by simply turning the affair upside down, when the plate falls into the holder without any risk of exposure to light. After exposure in the camera, it is returned to the box in like manner.

The great advantage of the changing box compared to the ordinary double holders is the saving of weight and bulk. The reason why this elegant form of apparatus has not been more extensively used in this country is undoubtedly owing to the fact that commercial gelatine plates here do not run even in size. This of course interferes with the free passage of the plate in the grooves, and leads thoughtless persons to condemn the apparatus itself, when the fault really lies in the carelessness with which the glass is cut. We should be very glad to see the changing-box re-introduced, particularly as the original idea is due to an American.

IN referring to the article on "Stops," which appeared in our last number, Mr. Pancoast asked us the question whether our advice of removing the stop to a distance of one-fifth of the focal length anterior to the anterior surface of the single combination, when used alone, was intended to apply to such lenses as the Ross Portable Symmetrical. We at once replied that such lenses as this could hardly be expected to give good results when the combinations were separated. For instance, the seven inch Portable Symmetrical covers an 8½ x 6½ inch plate, the diameter of the lens itself being rather less than five-eighths of an inch. If either combination were used alone, it is plain that the *full aperture* of the combination would represent F 28. This is in fact equal to quite a small stop; and as no definition of good quality could be expected without still further stopping down, the exposure would be greatly lengthened. It should always be borne in mind that the average photographic lens is not intended to be taken apart and its combinations used singly; and that such a manner of working is at best a mere makeshift. Certain proportions between diameter and focus, as well as between stops and focus, have been settled upon by opticians as the best. Our remarks in last month's article were intended to apply rather to lenses of larger diameter, such as portrait lenses, euryscopes, and perhaps rapid rectilinears. In lenses of "casket" pattern, great pains are taken to secure the proper position of the stop, special directions accompanying each lens.

OUR ILLUSTRATION.

THE charming little study from life which we present with this number of the JOURNAL will serve as an encouragement to our many lady amateurs. We can well remember the feeling of pleasure with which we, the older members of the calling, welcomed the first lady amateur photographer. We congratulate them on their success, and would be glad to have more of them with us. Mrs. Julia Cleveland, of this city, is the only American lady amateur to receive the "red letter" diploma of the *special seven* at the exhibition of the Philadelphia Photographic Society, held in April of last year. Mrs. Cleveland has chosen her little son for a subject, and has scored such a real success in the pose, arrangement of light and shadows, and general treatment of the subject as was not surpassed by any exhibited by professionals at the Exhibition. While looking at the little fellow's joyous and self-satisfied expression, one cannot but feel that "One touch of nature makes the whole world kin." There are others who perhaps might be inclined to say with the more phlegmatic, "We never cease wanting to be grown up, until we are grown up; then we never cease wanting to be young again." The picture exhibits a refinement and artistic beauty that irresistibly attracts one to more than a mere casual observation, whether it be by a novice or a photographic expert. It may be of interest to state that a Cramer 50 plate was used, with a full opening of a Beck lens, and McCollin & Co.'s pyro developer. The title has been well chosen by our lady artist, "I'M A BIG BOY NOW."

THE MODERN PHOTOGRAPH.

THERE are many funny fancies—
Some are fit to make one laugh—
But the oddest is the fashion
Of the latest photograph;
Formerly they took your picture
Front face, eyes upon a crack,
Now-a-days the proper caper
Is to photograph your back.

FRANK B. WELCH in *Time*.

MISS JHUBB (Boston)—Have you ever delved into the esoteric mysteries of theosophy?

Miss Penn—No, I cannot say that I have.

Miss Jhubb—It is a beautiful philosophy. Your true theosophist is a being of infinite calm. Nothing disturbs the peaceful indifference of his pacific mind. Worry, anxiety, irritation, anger, are to him unknown. His is a state of perfect rest.

Miss Penn—Just like a dead man, isn't he?

CLOUDS IN LANTERN PICTURES.

NO one will deny that a lantern picture is often improved by the addition of clouds, and if these happily appear in the one negative so much the better. Sometimes clouds are so buried in the over-dense sky of the negative that it is a difficult matter to get at them. Sometimes local reduction may be advisable, and if the worker is afraid of doctoring his negative with chemicals, after he has looked upon it as finished and done with, he may with advantage adopt that mechanical mode of reduction which is possible by rubbing with old linen moistened with alcohol. (This method will, by the way, often unearth the details of a church window, which before had been lost in halation.) If, however, there are no clouds in the negative, and a large expanse of white is the printed result, we must adopt other means to remedy the defect, for defect it is. In the case of a snow scene, or, indeed, any picture where there are brilliant high lights, the sky can be toned after printing by exposing it to light, shielding the rest of the picture. It can even be done after partial development—the development finishing the landscape and toning the sky at the same time. But when actual clouds are requisite, a separate cloud negative must be used. The work is by no means so easy as it is in the case of a silver print on paper, for the reason that so much judgment is required during the exposure, first of the landscape, and then of the sky negative, the actual results not being apparent until development. Some advocate the printing of the sky on a separate plate, and then making that plate the cover-glass of the finished slide. But the difficulties are increased by such procedure, for the image of the clouds is reversed. I believe that the best plan to adopt is as follows: first of all select the sky negative for use, taking care that the clouds are lighted from the proper direction. (To make all safe, it is as well to make a trial silver print from the combined negatives, in order to see if one is really fitted to the other.) Next fix a 3-inch mask on the glass side of each negative, so that the lantern plate can readily be removed from one to the other, and will be in register for both. Measure the height of the horizontal line on the landscape negative, and if it be, say, an inch and a half from the bottom of the paper mask referred to, make a pencil mark at that height on the mask which is affixed to the cloud negative. Now give the necessary exposure to the landscape—preferably by gaslight, as then there is plenty of latitude, and then (by ruby light) remove the plate from its frame and place it in another frame on the cloud negative. Fasten it up securely, turn the frame over, and note the position of the pencil mark on the mask.

Now turn up the gas once more, and during exposure shield that portion of the plate below the pencil mark with a piece of card. Keep the card in motion well above the mark so as to get a graduated tint, and after due exposure turn down the gas and prepare for development.

Be sure to have at hand a ten per cent. solution of bromide with a camel's hair brush in it ready for use. It may not be wanted, but if it should be, it will be wanted badly. For instance, the sky may soon show that it has received more than sufficient exposure, while the landscape has not had enough and hangs back. In such a case, rinse the sky portion of the plate, and paint it over with the bromide solution; then redevelop.

But a little practice with this method of double-printing will render such dodges unnecessary, for the operator will soon acquire the habit of exposing his plates to suit the needs of both negatives. But when all is said and done, the best effect is to be obtained when the one negative is adorned with natural clouds. Very often in this climate clouds are more common than is desirable, especially as they generally hold a remarkable quantity of rain; but on the sunny days vouchsafed to us the clouds are welcome, from an artistic point of view, at any rate. In lately looking over a set of instantaneous seascapes, taken last autumn on the south coast, I was surprised to find that a cloudless sky was the exception rather than the rule. One more word. Do not lose the opportunity of securing cloud negatives, for they can be obtained on days when other photographic work is next to impossible. At the same time, make a note by compass of the direction in which the camera is pointed, and the hour at which the negative is taken. Similar notes regarding landscape negatives will enable the operator to wed any two without a sacrifice of truth. Thus, supposing, for the sake the illustration, we have a picture of Shakespeare's Cliff, taken at 5 P. M., in August, from the Admiralty Pier, of which it is due west. A westerly sky negative taken in the same month, at the same time, can be associated with it without hesitation.

The question of altitude of clouds need not trouble us if the camera is kept level, and the horizontal line made to register in both landscape and cloud negatives, as I have already pointed out.

Most instantaneous shutters are so constructed that they will give a much shorter exposure to the sky than to the landscape beneath, and if clouds be present they will be reproduced in the negative in a printable form. A shutter for the express purpose of producing pictures adorned with natural clouds was invented some time back by Mr. Leisk, and is sold, I believe, by Messrs. Marion. But I fancy that it was adapted more for seascape, where there is an unbroken horizontal line, than for more general work. In my own practice, when I am anxious to secure cloud effects I use a shutter which was designed and brought out about twenty-five years back by Mr. Dallmeyer, but which, like many other things, has been of late years revived and reintroduced, in a slightly altered and perhaps improved form. In its modern dress it is known as Place's shutter, and its chief merits lie in its simplicity, and in the control which the hand can exercise over it during exposure. It consists of a frame having two grooves, in each of which slides an ebonite plate. These plates are connected together by cords which run over a small roller at the top of the contrivance.

When an ebonite plate is down in front of the lens, the other is raised in its groove out of the way. By a string attached to this upper plate it is pulled down, and as it descends the other plate rises and the exposure is made. The duration of exposure, and the amount of extra time devoted to the exposure of the foreground, is therefore directly under the control of the hand which pulls the string. I have found it convenient to keep this shutter on my lens during the whole of a day's tramp with the camera, for, as will be evident, it is serviceable for any kind of subject which is likely to be met with, from that which requires a quick exposure, to the many seconds wanted when the camera is beneath the shade of thick foliage.

There is one thing to be guarded against in the use of separate cloud negatives, and that is the tendency to use them for every picture without consideration. In our exhibitions a large proportion of the works hung are often spoilt by being wedded with incongruous clouds, and many amateurs seem to think that if there is only a little patch of open sky it must have a bit of cloud pitchforked into it somehow. This is a mistake. In landscapes containing plenty of subject, and more especially in those in which there is a tracery of foliage against a large portion of the sky, the picture is the better for not being tampered with. A sunlit landscape photograph is very often spoilt by association with a dark, cloudy sky, through which in nature no sunlight could possibly penetrate. I may mention in concluding this portion of my work, that an excellent article on printing-in clouds in lantern slides, from the pen of Mr. Lyonel Clark, appeared in the October (1889) number of the *Photographic Quarterly*.—*The Amateur* (London) *Photographer*.

T. C. HEPWORTH, F.C.S.

TREASURER'S ACCOUNT OF THE P. A. of A.

G. M. CARLISLE, Treasurer, in account with the Photographic Association of America.

DR.

	To cash on hand as per last report		$2,895 73
	Received from Theo. Endean after making report	$20.00	2,915 73
	Received from 238 new members at	5.00	1,190 00
	Received from 306 members' dues at	2.00	612 00
Aug. 12.	Received from O. P. Scott, for floor space		1,127 50
" "	" " C. H. Codman & Co., for floor space		110 25
" "	" " Public admission (1325)		331 25
" 23.	" " Harvard Dry Plate Co., floor space		110 25
" "	" " E. & H. T. Anthony & Co., floor space		141 75
Sept. 3.	" " O. P. Scott, floor space		340 75
Nov. 15.	" " Eastman Dry Plate Co., floor space		141 75
Dec. 23.	" " O. P. Scott, floor space		247 25
	" " O. P. Scott		264 40
	" " 206 extra buttons sold at 25c.		51 49
	" " interest to July, 1889		75 14
			$7,659 51

DISBURSEMENTS, 1889.

Jan. 19.	Paid draft No. 1 J. M. Appleton, expense attending Executive Committee meeting	75 15
" "	Paid draft No. 2 O. P. Scott, expense attending Executive Committee meeting	95 00

Jan. 19.	Paid draft No. 3 H. McMichael, expense attending Executive Committee meeting	75 00
" "	Paid draft No. 4 G. M. Carlisle, expense attending Executive Committee meeting	14 35
" "	Paid draft No. 5 S. G. Greenwood, type-writing	5 95
" "	" " " 6 Snow & Farnum, printing	5 50
Mar. 6.	" " " 7 Snow & Farnum, printing	2 25
" "	" " " 7 Matthews & Northrup, printing	12 27
Apr. 25.	" " " 8 Chicago Printing Co., diagrams	16 50
June 12.	" " " 9 D. E. Wyand, Electro Plates	46 00
July 1.	" " " 10 Wm. R. Brown, rosettes	30 00
Aug. 13.	" " " 11 Boston Electric Light Co.	112 50
" "	" " " 12 J. M. Appleton, expense	77 10
" "	" " " 13 S. G. Greenwood, stenographer	148 54
" "	" " " 14 Boston Police Department	43 72
" "	" " " 15 George H. Hastings, expense account, as per vouchers	68 50
" "	" " " 16 George H. Hastings, expense account, as per vouchers	104 22
" "	" " " 17 Mass. Mechanics' Association, rent	675 00
" "	" " " 18 Boston *Globe* and *Herald*, advertisements	22 80
" "	" " " 19 H. McMichael, expense account	152 50
" "	" " " 20 G. M. Carlisle, expense account	75 00
" "	" " " 21 O. P. Scott, expense account	124 50
" 15.	" " " 22 The Scovill & Adams Co.	100 00
" "	" " " 23 Matthews, Northup & Co., souvenirs	383 00
" "	" " " 24 Tiffany & Co., medals and buttons	1,275 00
" "	" " " 25 O. P. Scott, com. account	200 00
Dec. 2.	" " " 26 George Murphy, circulars	5 50
" "	" " " 27 Matthews, Northup & Co., printing	29 25
" "	" " " 28 For partitions	18 67
" "	" " " 29 O. P. Scott, balance of commission	274 37
" "	" " " 30 G. M. Carlisle, ten per cent. of receipts	474 37
		$4,742 51

Postage	$9 50	
Commission paid Sec. Potter (Endean)	2 00	
Commission paid Treas. Carlisle	2 00	
Express	3 25	
Expense to Boston Hall business	4 00	
Messenger boy	35	
Telegram	53	21 63
Total disbursements		$4,764 14
Cash in banks		2,895 37
		$7,659 51

RECAPITULATION.

Paid for expense, 1889	$4,764 14
Cash received, 1889	4,743 78
Expense in excess of receipts	$ 20 36

There is yet due the association $40, which, when paid, will show a gain of $19.64.

Respectfully submitted,
GEORGE W. CARLISLE, Treasurer.

P. S.—Received after this report was made up from Messrs. E. & H. T. Anthony, for advertisement in Souvenir, $20.

O. P. SCOTT in account with the Photographers' Association of America.

Aug. 10, 1889.	Received from	B. French & Co., for space	$52 00
"	"	J. A. Knorr, for space	21 25
"	"	S. Wing, for space	10 00
"	"	Geo. Heyn	10 00
"	"	J. A. Schindler	15 00
"	"	G. Gennert	31 90
"	"	Acme Burnisher Co.	31 50
"	"	Eagle Dry Plate Co.	110 25
"	"	Smith and Pattison	141 75
"	"	Blair Camera Co	195 50
"	"	Schwartz	82 50
"	"	J. C. Sommerville	55 00
"	"	Scovill & Co.	141 75
"	"	Stanley Dry Plate Co.	141 75
"	"	Entrekin Burnisher Co.	121 50
"	"	Seed Dry Plate Co.	114 00
"	"	Packard Bros.	114 00
"	"	Wilson & Hood	36 00
"	"	Geo. Murphy	36 00
"	"	White Chair Mfg.	36 00
"	"	A. M. Collins & Co.	60 00
"	"	Mr. Schultze	60 00
"	"	J. Gilbert	13 50
"	"	Morris Earl & Co.	42 75
"	"	J. W. Bryant	88 00
"	"	G. Cramer	82 50
"	"	Scovill-Adams Co. (adsv. in Souvenir)	15 00
"	"	A. M. Collins " "	10 00
"	"	G. Cramer " "	15 00
"	"	Seed & Co. " "	10 00
"	"	Wilson Hood " "	5 00
"	"	Acme Burnisher Co. " "	10 00
"	"	Gundlach Lens Co. " "	10 00
"	"	Air Brush Co. " "	10 00
"	"	Mr. Knapp	25 00

Aug. 10, 1889.	Received from L. W. Seavey & Co.	60 00
	" " Sprague & Hathaway	10 00
		$2,024 40

DISBURSEMENTS.

Dec. 28, 1889.	Express on Tin Box from Indianapolis	$1 40
	" " Diplomas from Indianapolis	60
	" " Tin Box to Boston	1 25
	" " " Chicago	1 25
	" " Books to Chicago	65
	" " Stationery from Buffalo	75
	Telegram	50
	Stamps	2 00
	Telegrams	1 80
	Stamps	2 00
May 16, 1889.	Telegram	65
" 22, "	"	60
" 24, "	"	4 00
	Express on By-Laws to Geo. Murphy	80
	Circular to Dunn & Co.	23 00
	Stamps	1 25
Aug. 12, 1889.	Paid Treasurer	1,127 50
Sept. 3, "	" "	340 75
Dec. 3, "	" "	247 25
" 3, "	" "	264 40
		$2,024 40

AN EASY YEAR FOR CORRESPONDENTS.—" Lots of time will be saved by letter writers this year," said a very busy merchant down town the other day. He had improved a breathing spell in his working hours by scribbling all over a piece of scratch paper the dates 1889 and 1890.

"See here," he continued, pointing with his pen at the paper, " Do you know that I can write 1890 much faster than 1889, although I have had the advantage of a year's practice with the latter date? It is only the difference of a fraction of a second, of course, but when you add together those fractions of a second hundreds of thousands of millions of times they go to make up a very respectable period of time—perhaps a century or so in all. We haven't had such an easy date to write as 1890 since the year 1860. All the dates from 1870 have been awkward for penmen. Try it a few times and see how easily you can put 1890 on a paper. The next week you will wonder why you will persist in writing the awkard 1889, and scratching it out again. But you'll do it all the same."—*N. Y. Sun.*

INFLUENCE OF THE PROCESS OF COOLING UPON THE OPTICAL PROPERTIES OF GLASS AND THE PRODUCTION OF PRESSED LENSES IN A THOROUGHLY ANNEALED STATE.

Communication from the Glastechnisches Laboratorium, Schott & Gen., in Jena.

THE very imperfect state of annealing generally met with in the glass-discs for larger telescopes formed for many years past a constant source of complaint of such opticians who, in the manufacture of large-sized lenses, are working strictly spherical surfaces. For this and other reasons, it has been our aim ever since the erection of our works to improve on the process of annealing. The method hitherto in use, viz.: that of allowing the temperature of the red-hot glass to fall in a kiln completely enclosed by brick-work, which gradually transmits the heat stored up in it to the surrounding atmosphere, has been discontinued by us in all such cases, where high optical properties are aimed at, and in its place we adopted the plan of storing the glass in a vessel the temperature of which may be accurately measured and subjected to a very slow and strictly uniform decrease, the duration of which may be adjusted to suit special requirements.

The experimental researches which formed the necessary predecessors of our new process of annealing, offered ample opportunity for minutely studying the influence of internal strains and pressures upon the optical properties of the glass. We intend to treat in extenso on this subject at a later date; here it may suffice to mention the most important of those results which will interest practical opticians.

1. Any kind of glass becomes strained, *i.e.*, the molecules of the glass are subjected to tension, unless the process of solidification be extended over a very long period.

2. The refractive index of one and the same piece of the glass varies according to the duration of the process of annealing; this diversity may extend to several units of the third decimal place.

3. If a lens or circular disc on being carefully examined by means of polarised light be found to yield a regular black cross, which remains perfectly free from any distortion during a complete rotation of the disc about the optic axis, it may be inferred that the tension is strictly regular throughout the entire piece of glass under examination. The presence of a moderate tension of this kind has no other effect as if there were a slight gradual diminution of the refractive index in the direction of the axis. Owing to the symmetrical arrangement of the tensions round the axis, they do not exercise any detrimental influence on the image.

4. If, however, a lens or circular disc, while being turned round its axis under examination in polarised light, show in any one or several positions a displaced black cross or any other irregular figure, the tension must be considered to be irregular. The influence of such tensions dissymmetrically grouped round the axis is identical to that of a difference of the refractive power in different parts of the lens. Glasses of this kind should never be employed for the manufacture of large-sized objectives. With telescopic lenses made of glass where this defect existed in a moderate degree,

many opticians attempt to compensate this differentiation of refraction by introducing at random deviations from strictly spherical surfaces through polishing, with the result of thus obtaining pretty satisfactory images.

By means of our method of annealing we have succeeded in producing discs for object-lenses having a diameter up to 35 cm. nearly perfectly free from tension. The entire surface of the disc being made to become efficient under the polaroscope. All that is necessary during the test is to exclude any differences of temperature of the discs, as these are apt to give rise to temporary tensions. Nearly all discs annealed according to the older system show the distinct black crosses characterizing the presence of strain and pressure, even in those cases where the diameter of the discs does not exceed 2 cm.

Though it must be admitted that many opticians, before grinding large-sized lenses for telescopes, will ascertain the properties of the glass with respect to annealing, yet we know from experience that there is considerable inclination to underrate the serious effects of tension, and that many go so far as to consider examination before or after making a lens, hardly worth the trouble.

We append to these lines a sketch of an apparatus, the principle of which is due to Prof. Mach, of Prag, which may be readily put up and by means of which plane plates (Fig. 2) or positive lenses (Fig. 1) may be tested. The apparatus must be adjusted in such a manner that with parallel Nicol prisms the eye at *E* sees the lens or disc to be tested fully illuminated; if now the Nicol prisms be crossed, total extinction will take place with glasses having no internal tensions, whereas with imperfectly annealed glasses the well known figures indicative of tension will present themselves.

In order to examine the figures due to strain or pressure in all positions of the prism with respect of the disc of glass, it will be found advantageous to turn both prisms synchronically rather than to turn the discs themselves, as these owing to the touch of the warm hand may become locally heated.

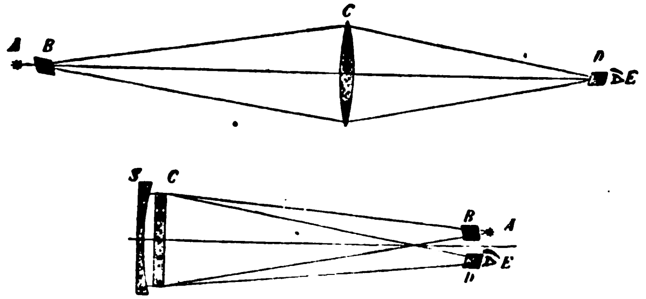
In order to better distinguish the present new method of annealing from that hitherto in use—raw annealing,—we have introduced the term "fine annealing" when referring to the former.

PRESSED GLASS.

Our experiments and improvements made with regard to the process of glass-annealing, have induced us to adopt for our fabrication the well known plan, worked in Paris since many years, of moulding the glass by means of pressing it while in a semi-liquid state between metal cups having as nearly as possible the same curvatures as the lens. Lenses produced in this manner are utterly useless for application in better class instruments if the ordinary quick process of annealing be employed, as the internal strain in the glass will generally be very great and sometimes may become so excessive as to cause the rough lens to fly into small pieces as soon as an attempt is made to grind it. However, with our new method of annealing, which permits of annealing at such low temperatures as to put deformations out of the question, ready means are furnished to produce lenses of this kind entirely free from internal strains by subjecting them, after having allowed them to cool down, to a second process of annealing in the above mentioned apparatus.

Wishing to remove a prejudice held by many opticians, we will not omit to distinctly state that the pressure exerted on the glass while in a semi-liquid state is by no means the cause of internal strain or pressure; on the contrary, the only source of these must be looked for in the accelerated process of chilling, which has to be made use of in order to prevent deformation.

The favorable practical results obtained by many opticians with glass prepared in this manner encourage us to recommend its application for all such cases where large numbers of lenses of the same kind have to be made with various curvatures and diameters within the limits between 12 to 120 mm. The increased costs of glass prepared in this manner are amply compensated for by the saving of material and work. Lenses having the exact form of the desired lenses suffice as patterns. On account of the prolonged period of annealing we require as a rule a term for delivery from 6 to 8 weeks. We are prepared to submit sample lenses to our customers.



A Illuminating source (bright-burning petroleum flame).
B Polarising Nicol prism.
C Lens or disc to be tested.
D Analysing prism.
E The observer's eye.
S Concave mirror.

In Fig. 1 *A* and *B* are conjugative points with respect to the lens *C*; in fig. 2 both points are situated in the plane of the centre of curvature of the mirror *S*.

Jena, December 1889.

MOST of the leading manufacturers of photographic lenses have of late put new lenses on the market, for which they claim special excellence as to the results obtained. The advantages of these lenses are due to the new optical glass, now manufactured at Jena, in which boric acid, to a greater or less extent, replaces silicic acid, It is to the properties of this glass more than to any new method of construction that these lenses owe their excellence.

ON A GENERAL METHOD OF TONING PHOTOGRAPHIC SILVER PRINTS WITH PLATINUM AND METALS OF THE PLATINUM GROUP.

BY PIERRE MERCIER.

Comptes Rendus (109) 949.

THE attempts heretofore made to tone silver prints with platinum have not yielded satisfactory results. In solutions of platinic chloride the silver image rapidly becomes pale and disappears, for the silver is converted into chloride, and is not replaced by platinum, that metal being simply reduced to platinous chloride. But if a solution of platinous chloride be employed, and, contrary to the requirements of a gold toning bath, this bath be rendered acid with mineral or vegetable acid, the silver prints immersed in it quickly acquire a black tone, passing through intermediate shades of an agreeable purple. Two atoms of silver are then replaced by one of platinum.

Palladium, iridium and osmium, under the same conditions as the platinum, furnish characteristic tones, and the general method of preparation of the baths appears to be based on the principle that toning by metals of the platinum group must be conducted in acid baths and the metal must be in the lowest form of combination.

Platinum toning.—The soluble and very stable chloroplatinites make excellent toning baths. Any of the alkaline chloroplatinites can be employed, the following formula serving as a type.

Potassium chloroplatinites	1
Sulphuric acid	5
Water	1000

The sulphuric acid may be replaced by hydrochloric acid but since the latter renders the chloroplatinites more stable, its quantity should not be greater than three in one thousand, or by organic acids, excepting such as formic, tartaric, or oxalic, which exert a reducing action on the platinum salt especially under the influence of light.

The toning bath may be prepared directly from platinic chloride by boiling it in the light with an appropriate reducing agent in the exact quantity required to reduce the salt to the platinous condition.

An excellent toning bath may be thus prepared by boiling in a glass flask a mixture of two grammes platinic chloride in solution, with one gramme sodium neutral tartrate, until the yellow liquid assumes a dull gray color, then making up the solution to one litre, and adding the proper quantity of acid.

Ruthinium and Osmium.—I have not succeeded in obtaining with ruthinium and osmium other tones than yellow, differing but little from the untoned prints.

Palladium.—A solution containing one gramme iodine chloride, two grammes palladious chloride, and two hundred grammes acetic acid to the litre of water rapidly blackens silver tones, but the paper takes a yellow tint which even after bleaching by five per cent. ammonia water, reappers more or less rapidly after fixing, and destroys the value of the prints.

Iridium.—The iridium tone resembles that of gold. The bath may be prepared by dissolving one or two grammes of iridium and platinum double chloride in one litre of water, and acidifying as with platinum. Silver prints tone slowly in this bath, but the whites remain pure, and handsome soft violet tones are obtained.

Osmium.—This metal gives tones quite characteristic. The bath may be made by dissolving one or two grammes of ammonium chlorosmite and twenty grammes acetic acid in a litre of water. Prints immersed in this bath take first a sienna brown tint; this color becomes modified first in the half-tones of the image, and changes to a more or less intense sky blue which affects the whole print. If, instead of allowing the prints to become blue, they are withdrawn from the bath as soon as the blue begins to appear in the whites, a very common result is obtained after the fixing. Besides the whites of the photographs, two tones are present; a light brown in the deep shadows, and a blue in the half-tones. With mineral acids the final tone obtained by the use of osmium is not blue but violet, and this tint appears even in the whites of the print.

W. H. GREEN.

THE ELECTRIC CANDLE CURE.—A subscriber at Bryan, Ohio, recently sent the *Electrical World* the following dialogue, which he overheard in the street:

"Howdy do, howdy do?"

"Oh, fair to middlin'; folks all well, but I have got a touch of rheumatiz."

"Oh, you can get rid of that; I had it so bad I couldn't raise my hand to take a chaw of terbacker, but it's gone now."

"What did you take for it?"

"Waal, when they put up them 'lectric lights, I got one of their candles they had dropped, and carry it in my pocket. You know 'lectricity is good for medicine. Waal, there is 'nough 'lectricity left in the candles when they put them out that some will soak inter you, and that knocks it every time. Jest try it."

"I will; where can I get one?"

"I've got a couple; take one."

"Much obliged; I'll give it a chance."

LIVES of poor men oft remind us honest toil don't stand a chance; more we work we leave behind us bigger patches on our pants. On our pants once new and glossy now are patches of different hue; *all because subscribers linger and won't pay up what is due.* Then let all be up and doing; send in your mite be it so small, or when the snows of winter strike us we shall have no pants at all.—*Exchange.*

TESTING THE RAPIDITY OF PHOTOGRAPHIC PLATES.

AT the November meeting of the Leeds Photographic Society, Mr. F. W. Branson delivered a lecture on "Some Recent Advances in Photography," in the course of which he gave the following interesting account of the latest method of testing photographic plates, viz.:—

The first instrument I shall bring before your notice is the lamp adopted by the International Photographic Congress for testing plates. An earlier form of acetate of amyl lamp was proposed by Siemens, but this has, in my opinion, been much improved by the suggestions of Mr. C. H. Bothamley, who places a screen with an aperture of a standard size on either side of the flame. Siemens' method was to obtain a flame of a definite height with a wick of standard dimensions, but this method is not perfectly satisfactory. The size of the aperture proposed by the Congress is one-fifth square centimetre, but Mr. Bothamley prefers for testing orthochromatic plates an aperture of one-half square centimetre. The exhibited has both these apertures.

Should the odor of the amyl acetate be objected to, the lamp can be placed under a ventilating hood in the dark room.

The following method which I have suggested for testing the rapidity of photographic plates with the above lamp is extremely simple, and is correct within a small percentage of error.

A standard candle can be used as the source of light, or in place of one candle, two candles at a greater acting distance may be substituted to compensate for the small variations to which a small candle is liable. Preference is, however, given to the standard lamp before mentioned.

The sensitometer required may be easily made as follows:

A ¼ plate or other printing frame is ruled with four ink lines, so as to divide the clear opening of the aperture in the direction of its narrowest diameter into five equal spaces; number the upper division on the printing frame 1 to 5, and the lower 6 to 10. In order to give a graduated series of exposures, take a thin sheet of metal or a piece of cardboard, at least twice the length of the plate to be tested, and remove a portion sufficient to expose the upper half of the plate; one portion of this screen will now cover the whole of the plate, and the cut away portion the lower half only of the plate. It is therefore obvious that by moving the screen forward (at a distance of one metre from the lamp) one ruled division every five seconds, that ten exposures of a definite duration may be given to consecutive areas of the plate. A metronome, beating seconds, may be used to indicate periods of time. The plate is then developed with a standard developer, and the density compared with a standard tint. *The* (London) *Camera.*

A WOMAN'S VIEW OF THE ART THAT CAN IMMORTALIZE.

MY unfortunate husband was stricken with the amateur photographic plague about two years ago. Up to that time I always considered him reasonably sane. Although at my request he has quit smoking, he positively refuses to give up his photographic habit. At the time he began this so-called recreation our home was one of the neatest in the neighborhood,—you ought to see it now! The carpets have been ruined with those horrid chemicals. The bath-room is something frightful to behold! He uses it for his dark room. One of the photographic books that he has, and there is no end of them, states that Daguerre was the inventor of photography, but I think it must have been a sulphurous gentleman with the same initial who was the inventor of amateur photography. My husband was reasonably good-tempered before he took up your diabolical art. I one time opened the door of the room in which he was working; it was all dark except a dull red lamp, which gave a fearful weird look to the whole room. The moment I opened the door and let in some light he went perfectly crazy. He claimed I spoiled all his plates, just as if in those few moments anything could be ruined, when I had absolutely touched nothing. I came near applying for a divorce because of his awful remarks. If the evil one was not the inventor of amateur photography, then I would like to know who was. Then the pictures he does turn out, when he gets them finished, are perfectly awful. He has tried at different times to photograph the children; but the poor little dears look like wooden images. I went into the bath-room once with the baby, and put him in the bath-tub. There was some nice clear water there already; but he had some of that horrible solution of silver in it. That turned the baby jet black, and we haven't been able to get the color off him to this day.

Then the cost of the thing is something frightful, although my husband carefully conceals what he spends on it. I came across one of the stock dealer's bills the other day, and it was enough to make one's hair stand on end. Pyrogallic acid whatever that may be, was 35 cts. an ounce. Just to think of it, if we had to pay that price for sugar,—$5.60 a pound instead of 10 cts.! And that wasn't the worst of it. What do you think of his charge for chloride of aurum, 60 cts. for 15 grains. As you know, that is about $20 an ounce, and $20 an ounce is over $300 a pound. I not know how much of this stuff he uses every week, but if it is only ten pounds of it every week (and I'm sure ten pounds of sugar don't go very far in a family like ours), you will see that it is $3000 for that one thing alone, not to mention the dozens of other chemicals he uses, and I don't know what the price of them is. I tell you that amateur photography was intended to drive a poor woman crazy who has a husband that is a victim to the villainous practice. No wonder he says he can't afford a new dress for me when I ask him for it. I'm always afraid to sweep in any part of the house for fear it will raise a dust that will spoil something that he tacked up on the wall to dry. I wouldn't mind all this so much if he ever took a picture worth looking at.—MRS. CAMERA TRIPOD, in *Detroit Free Press*.

THE AMATEUR PHOTOGRAPHER ON THE WITNESS STAND.

IN a case lately tried in one of the Pennsylvania courts, the following circumstance occurred, which, as will be seen, resulted in the discomfiture of the learned counsel. The issue was a railroad case where damages were claimed for personal injuries, received, it was claimed, by the shortness of the stop, and the case hinged upon the time the train remained motionless at the station. On this subject there was a wide diversity of opinion in the evidence. On the part of the plaintiff it was endeavored to show that the stop was only from eight to ten seconds, or even less time; while on part of the defence it was stated that the actual time which elapsed was from forty-five to sixty seconds. During the progress of the case several passengers of the train were called by the railroad company. One of these witnesses, a young man of the meek, quiet sort, such as are met with almost every day in the usual walks of life, affirmed that the stop on that occasion was exactly forty-three seconds. This was apparently too good a chance for the opposing attorney to let pass, and, considering the inoffensive appearance of his victim, he expected to score a strong point for his client by tangling him up on cross-examination. When the direct testimony was finished, the lawyer, bracing himself back, and with a frown and stern voice said:

"You have sworn that the exact time of the stop was forty-three seconds—no more, and no less. Do you want that to go to this jury as your evidence?"

Ans. Yes sir.

Ques. Did you use your watch to determine the exact time?

Ans. No sir.

Ques. Now, sir, you are on your oath; now state how you know that the stop in question was not forty-two or forty-four seconds?

Ans. Because I am positive it was forty-three.

Ques. Now, sir, will you explain to the Court and jury how you make this ridiculous statement of setting the exact second, without having looked at your watch?

Ans. Yes sir, very easily. I am a member of the Leopardville Camera Club, and was practicing the counting of seconds at the different stops along the road that day, comparing my count with my watch. Was doing this for the purpose of timing exposures. At the station in question I counted the seconds, but did not look at my watch, and I am willing to affirm that I am not two seconds out, or I am willing to submit to a time test here on the stand.

The offer was not accepted. The learned counsel did not know that it was loaded.

MORAL.—Before you attempt to tangle a witness up on time, be sure that he is not an amateur photographer.

S.

THE PHOTOGRAPHIC SOCIETY OF PHILADELPHIA.

A STATED meeting was held Wednesday evening, February 5, 1890, with the President, Mr. Frederic Graff, in the chair.

Communications were received from Messrs. E. & H. T. Athony & Co., presenting a bound volume of Anthony's *Bulletin* for 1889; from Edward L. Wilson, presenting a copy of "Photographic Mosaics" for 1890, and from Louis Reichner, Jr., presenting a gavel stone for use by the society. A vote of thanks was tendered in each case.

The Secretary announced that an International Photographic Exhibition would be held at Newcastle-on-Tyne, England, from April 23d to May 3d, by the New Castle and Northern Counties Photographic Association. As this association had been particularly well represented at the various exhibitions in which the Photographic Society of Philadelphia was interested, he expressed the hope that members would show their appreciation of this fact by sending a goodly number of fine exhibits.

The Committee on Lantern Slides reported that the Interchange lantern slides shown at the conversational meeting were those of the Cincinnati Camera Club, and in addition, slides were shown by Dr. Mitchell, Dr. Reed, and other members. The committee, in accordance with the directions contained in a resolution adopted at the last meeting, had made preliminary arrangements for a public lantern exhibition at Association Hall, Wednesday evening, March 12th.

The Committee on Membership reported the election to Active membership of Messrs. William C. Stevenson, Jr. and Joseph C. Roop.

A paper was read by Dr. Charles L. Mitchell, on "The Silver Printing Bath."

Mr. Browne said that in listening to the very interesting paper, his mind reverted to many years ago when he had a good deal of trouble with the discoloration of the silver bath, and he mentioned one point that occurred to him. He had found after many trials a process of preparing the silver bath which obviated all difficulty from discoloration. He had been using it since 1863, and it was yet as clear as crystal. It was made originally of seventy grains of nitrate of silver to each ounce of water. To every quart of silver solution, a half ounce of concentrated ammonia was added, which, of course, made a precipitate that was cleared up with solution of nitrate of ammonia; then an ounce of alcohol was added to a quart of silver solution. It seemed odd to put in so much organic matter as an ounce of alcohol, but the bath never discolored.

Dr. Mitchell referred to a process he had tried in treating a bath that had became discolored, and in which he used a solution of caustic potassium. Warmth had caused an explosion.

Dr. Wallace, as an old pupil of Mr. Browne, said he had worked on the same idea as Mr. Browne described, making a slight departure. He had used sixty grains, afterward reduced to fifty, increasing the alcohol to 10 per cent. of the total bulk, and making an addition of alum as recommended by Mr. Anthony, of New York. It had never discolored unless exposed to light immediately after paper had been floated upon it. The solution was always in order.

In reply to a question of Dr. Mitchell as to the evaporation of the alcohol, Mr. Wallace said that when the bulk became reduced, alcohol was added.

Mr. McCollin exhibited a little instrument called Decoudun's photometer, or to coin a name, an "exposometer." He described it as an apparatus for ascertaining the amount of exposure necessary in any subject. Through an oblong opening would be seen four holes—one larger and three smaller. After the picture had been focused on the ground glass the instrument was placed against the latter, turning the button at the back, looking through the oblong hole and watching the three smaller holes as the light disappeared. Then taking the instrument away and reversing, and looking through another round hole a letter would be found. This letter corresponded to a table which would give the time of exposure necessary on that particular view or subject.

Mr. Burrows had used the instrument, but not sufficiently to speak in regard to it. It could be used also in testing the light-giving capacity of different lenses.

Mr. Pancoast related an experience in making lantern slides. During warm weather he had been quite successful, but on the coming of cold weather he found it was impossible to get anything but a dull green tone or black gray without any life to the slide. Upon investigation he found this was due to the temperature; by warming the developer a little he increased the warmth of tone. If the developing solution was below 60 degrees the results were bad, but at 60 to 65 satisfactory results were obtained.

Mr. Pancoast passed around slides and asked the nature of the deposit on the cover glass. The sky of the slide was covered with a crystalline deposit. The slides were made by Mr. Rau two years ago by the wet process, and were mounted in the usual way. They were stored in a pine box without being separated.

Mr. Coates said this occurred in ten per cent. of slides, and would all rub off. It was in the covering glass.

Mr. Rau had a box of slides made one and a half or two years ago, and on opening the paste board box in which they were, he found them covered with the same sort of deposit. They had been made on a fine quality ot French glass.

Mr. Bell said that the cover glasses of daguerreotypes were affected in a similar manner. The mercury with which the pictures were developed he thought afterwards evaporated and formed the deposit. If mercury had been used in any form on the slides this would perhaps account for it.

Mr. Rau said mercury had not been used.

Mr. Burrows suggested that slides be submitted for careful examination, microscopic or otherwise.

Mr. Suplee thought the deposit might be organic, and come from the gum or paste around the edges.

Mr. Pancoast thought it must be in the subsequent treatment of the slide after development.

Mr. Coates referred to metal bound slides that were being brought out in England.

Mr. Carbutt thought the remedy would be to coat the slide itself with collodion, and the glass too, before putting them together. The moisture that gets between the plates had a good deal to with the trouble, he thought.

Mr. Wallace asked if oil or glycerine would not answer the same purpose as collodion.

Mr. Carbutt said he would not advise the use of glycerine, as it might get into globules.

Mr. Rau asked if Mr. Carbutt did not think it was in the glass itself,

Mr. Carbutt thought that the chemical composition of the glass might have something to do with it.

Mr. Earle asked what would be the effect of using Canada balsam between the glasses, as it hardened and made a good medium for light to pass through.

Mr. Carbutt thought that would be a preventive.

Mr. Bell said balsam would necessitate the use of plate glass.

Mr. Coates found as lenses grew old they split apart, either by the balsam drying and becoming too thin to fill the space, or by some warping action,—perhaps the contraction of the glass,—requiring them to be taken apart and re-balsamed. This would ruin the lantern slide.

Mr. Rau had a Ross portable symmetrical lens that had the same defect, and thought it must be in the nature of the glass.

Mr. Pancoast mentioned in that connection that lenses in India were particularly susceptible to the fungous growth, and only remained in condition a few years—due to the damp weather between December and April. It was a matter of heat and moisture.

Mr. Suplee thought it might be organic.

Mr.Cheyney thought that one of the slides showed decidedly inorganic matter that had taken the form of crystallization.

Dr. Mitchell said an article in a photographic paper he had read ascribed it to chemical action, the glass being actually etched.

Mr. Wilson had noticed the same defect in old opera glasses.

Mr. Coates moved that the subject be referred to the Executive Committee for further investigation. Carried.

Dr. Mitchell referred to an article by Capt. Abney in one of the recent journals, in which he stated that on trying a color screen tinted with turmeric on some mountain views in Switzerland, in connection with ordinary plates, he found no advantage in the use of the screen. On repeating the experiment with a screen colored with aurine, however, and increasing the exposure thirty times, very satisfactory results were obtained.

Mr. Bell thought turmeric was adapted to the work with orthochromatic plates, and was as good as anything.

Mr. Carbutt said aurine was very much better under certain circumstances where the color must be held down while exposing for greens or browns, or reddish browns. A very strong color could not be gotten from turmeric.

Mr. McCollin had had occasion to copy a painting, and had made a color screen, using it in place of a stop. He had used picric acid. The stop itself was made of thin glass.

Mr. Carbutt said that while taking some views during a visit to the Lotus Club gardens at Bordentown he became convinced that the proper place for the color screen was between the lenses.

Mr. Bell spoke of his experience in orthochromatic photography. He commenced by putting the color-glass in the diaphragm slot, taking thin mica and coating it with collodion. He had found no material difference when putting in either at the front or back, but thought it much more convenient to put it in the back.

Mr. McCollin had treated a piece of mica, but found it altered the focus. It was thicker, however, than that used by Mr. Bell.

Mr. Bell thought it might be a question of eyesight.

Mr. Rau had used a piece of light orange glass, but could not get sharp focus with it.

Mr. Redfield had a box made with a groove back of the lens, in which he could slip the color screen, and when out in the field used it or not, as convenient.

Mr. Pancoast asked whether in using the back combination of a Ross Portable Symmetrical Lens as a single lens the stop was in the right position. A writer in one of the recent journals had said that in using a lens in this manner the stop should be moved forward so as to be one-fifth or one-sixth the focal length of the lens in front of the glass. In the portable symmetrical lens, if the stop was changed to this position, it would seem as if the light would only be admitted to the plate in almost parallel rays, so that only three or four inches square would be covered.

Mr. Redfield mentioned that Mr. J. G. Bullock had used quite extensively a 6 inch Ross Portable Lens as a single lens on a 6½ x 8½ plate, and had made some of his finest landscape work in this manner.

Mr. Carbutt suggested the use of an adapter to change the position of the stop about ½ inch forward.

Mr. Bell had endeavored, in 1876, to get a lens of 40 in. focus to photograph the Centennial Buildings, etc., for Mr. Gutekunst, but, failing to find one, had used the back combination of a 21 in. Ross Portable Lens, the stop remaining in its normal position. As the temporary camera used allowed no adjustment for focus, the plate was fixed at 42 in. from the lens by measurement only, and the result was a perfect success.

Adjourned, ROBERT S. REDFIELD, *Secretary.*

POMPOUS PARTY.—"So you are the exchange editor, young man. Nautically speaking, you are a clipper?"

SEARNELL.—"No. Inasmuch as I ply the scissors for a living, I am a revenue cutter."

Here lies the body of Moses Draper
(Tread softly ye who pass),
Who lived till sixty without a paper,
And then blew out the gas.

DETROIT AMATEUR PHOTOGRAPHIC SOCIETY.

A SPECIAL meeting of the Detroit Amateur Photographic Society was held in the parlors of the Club, Friday evening, January 24th, for the purpose of meeting Mr. C. A. Stacey, representing the Eastman Company of Rochester, N. Y. The fore part of the evening was spent in examining Mr. Stacey's exhibit, after which a flash-light exposure was made of the members of the club; the negatives were then developed and passed around among the members. The transparent films were pronounced the thing for future use. The demonstrator used pyro, while some of the members used eikonogen, both with fine results; the negatives were made with the new Kodaks—all sizes up to 5 x 7—of which Mr. S. had samples.

Just before the club adjourned they were presented with views 6½ x 8½, made by Mr. Stacey on his previous visit to this city. After a vote of thanks the club adjourned.

J. E. LOCKWOOD, *Secretary.*

THE BOSTON CAMERA CLUB.

THE annual meeting of the Club was held at the rooms, Monday evening, January 6th. The following officers for 1890 were elected: President, Henry N. Sweet; Vice-President, Francis Blake; Secretary, Edward P. Wilder; Treasurer, William Garrison Reed; Librarian, John C. Lee. Executive Committee: F. Alcott Pratt, C. E. Davis, Jr., S. Henry Hooper.

The resignations of ten members were read and accepted, and the vacancies immediately filled from the waiting list by the election of the following: David W. Lewis, Adolf. Lomb, J. M. Bassett, Thos. W. Babcock, Edmund B. Garfield, Sylvester Baxter, A. Lincoln Filene, R. S. Stearns, O. A. Eames.

The Treasurer's report showed a gratifying state of the finances of the Club, and upon his recommendation it was voted to pay the remainder of the Club's floating debt from the income of the current year.

In response to an invitation from a committee in charge of the matter an informal exhibition of the work of members was displayed upon the walls.

Although not quite as extensive as the exhibition of a year ago, it was very creditable and contained much that was fine. A large proportion of bromides was noticeable, some contact prints by this process by C. E. Hubbard being noticeable for softness, yet full of detail.

The prize (a year's subscription to a photographic journal), was awarded by ballot to John C. Lee, for his study of a "Boy with Violin." Next in order of merit was Mr. Frizzell's "Village Blacksmith," in bromide, and Mr. Means' "Unloading Sea-weed," in albumen silver.

At the close of the meeting the company partook of a collation which the Committee on Entertainment had provided in the studio.

E. F. WILDER, *Secretary.*

LITERARY AND BUSINESS NOTES.

A MINNEAPOLIS judge has just decided that a photographer has no right to allow anyone but the person who is sitting for a picture to take photographs from his gallery. The case came up owing to a photographer allowing a detective to obtain a picture of a lady from his studio.

AMONG the camera sharps of Lowell are Editor Bayles and Reporter Myers of the *Citizen*. They have interesting collections, and take great pleasure in making additions to their stock. Mr. Bayles has the detective style of camera, and he has the portraits of a number of local gentlemen in funny positions. Reporter Myers has just returned from a European tour on foot, where he secured the grip in three different languages and about 350 fine pictures, taking in all sorts of men and things. He lugged his camera on his back from the Coliseum to the London bridge.

THE Photographic Times Pub. Co. have sent us a finely bound volume of *The Photographic Times* for 1889. On looking over its pages we are reminded again that our contemporary is high up in photographic literature. May their subscription list double the present year; they are worthy of it.

THE WHITE MOUNTAINS.—Two years ago the Boston Camera Club withdrew from the American Lantern Slide Interchange, desiring to concentrate the efforts of its working members upon "Illustrated Descriptions" of cities or localities.

In February, 1889, "Boston" was given to the public, and ever since then two complete sets, one in England and one in the United States, have been in active circulation among the Amateur Photographic Societies. The reception accorded to "Boston" encouraged the members to undertake another subject, and they for several months have been engaged in preparing "A Tour of the White Mountains." It will be ready to start on its travels by the first of March, and will be freely loaned to any Amateur Photographic Society desiring to give a public entertainment.

Applications should be addressed to Wm. Garrison Reed, Treasurer, 25 Kilby St., Boston, Mass.

"GLIMPSES OF CALIFORNIA."—The Pacific Coast Amateur Photographic Association of San Francisco have recently completed an illustrated lecture with the above title for circulation among the Amateur Photographic Societies, especially those who are engaged in a similar work respecting their own localities.

The Eastern circuit is in the hands of the Boston Camera Club, and any society that desires to use the lecture and slides in entertaining their friends, may apply to William Garrison Reed, Treasurer, 25 Kilby St., Boston, Mass.

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912 ARCH ST., Philadelphia, Pa.
January 29, 1890.

THE EASTMAN COMPANY,

GENTLEMEN:—The Silver Cup as prize for Bromide enlargements, entered for competition at the Boston Convention, duly received, and is pronounced by all our friends "a beauty."

Please accept our thanks for what we consider an evidence of your good will, as much as of your sense of justice.

We fully understand that the Eastman Company were in no wise responsible for the equitable disposal of the Prize cup after its having been placed in the hands of the officers of the P. A. of A. for award for the best work, and its having been given to another party contrary to the vote and protest of the judges appointed at the convention was, of course, no fault of yours.

Hence we consider that in making good the award of the judges by sending us this "Special Cup," you are evincing to the Photographic Fraternity as well as to us, a spirit of generosity as well as a strong desire for fair play in convention awards.

Yours respectfully,
ROTHENGATTER & DILLON.

THE PHOTOGRAPHIC TIMES ANNUAL FOR 1890.—The volume for this year contains a more than usually valuable and practical set of short articles on the different branches of photography. Our old friend, Mr. W. J. Stillman, heads the list of contributors with a paper on Architectural Photography. We also observe the name of several of our well-known photographers in Philadelphia. The miscellaneous bits of information of which the almanac proper consists are very full and complete.

THE BRITISH JOURNAL PHOTOGRAPHIC ALMANAC FOR 1890.—This standard and very acceptable volume appears this year in its well-known cover, whose plainness rather belies the attractive contents of the inside. The articles are, as usual, very varied in character, and the book is enlivened by several cuts and illustrations, among which the one of Colinton Dell, near Edinburgh, is not only a beautiful picture, but a fine specimen of the photo-mezzotype process.

FEBRUARY BARGAIN LIST.

Colored Lantern Slides, mostly foreign, $1.00 each.

80—Lantern Slides of California, Yosemite Valley, big trees, etc., 20 cents each.

Accessories:

1—7x10 Glass Bath	$1 00
1—Universal Finder	1 25
1—Wood Drop Shutter	1 25
1—Telescopic Tripod, for 8x10 camera	2 00
1—Calcium Light Scioptican	25 00
1—Fairy Tripod	3 00
1—Carbutt's Multum in parvo Lantern	4 00
1—15-in. Oscillating Burnisher,	10 00
1— 6-in. Eureka Burnisher,	8 00
1—Bromide Easel, with Kits up to 25x30	10 00
1—Haworth's Patent Camera Stand, for 8x10	6 00
1—Walmsley Reversible Finder	2 50
1—9x11 Glass Bath and Dipper	1 80
1—Packard Rock	3 00
1—8x11 Exterior Background, light right	8 00
1—Card size Burnisher	3 00
1—Cameo Press	1 00
1—Rustic Wood Chair	4 00
1 copy Photo Mosaics for 1881, in cloth	50
1 copy Photo Colorists' Guide,	75
1 copy About Photography and Photographers	50
British Journal Almanacs for 1889, reduced to	30
1—15-in Entrekin Eureka Burnisher	15 00
1—Fuming Box	4 00
1—15x18 Deep Porcelain Tray	3 00
1—15x18 Japan Tray	50
1—Iron Centre Camera Stand,	3 00
1—Seavey Swiss Cottage Accessory	12 00
1—8x10 Exterior Ground, good condition,	10 00
British Journal Almanacs for 1878,	20
Photo Mosaics for 1883,	20
1—8x10 Osborne's interior background, new, light left	20 00
1—4x8 Osborne's side slip	7 50
Pearl leads, the best retouching point in the market, each	15
5x8 Woodbury Dry Plates, PER DOZ.	80
5x8 Neidhardt "	65
4x5 Bridle "	35
1—8x10 Hough's Exterior ground, good as new, light left of sitter	$9 00
1—8x10 Hough's Exterior ground, light right	8 00
1—Hough's Oak Stump	7 50
1—Osborne's Bridge Accessory	8 00
1—Osborne's Gate Combination Accessory, new	18 00
1—6x6 Children's Fancy Ground	3 00
1—15 inch Smith & Pattison, Quadruplex Enameler,	25 00

Camera Boxes:

1—8x10 N. P. A. Camera, single swing	12 00
2—8x10 Novel Holders, each	2 50
1—5x8 Tourist Camera, plate holder, tripod, case, and No. 2 Darlot Rapid Hemispherical Lens	27 00
1—4x5 "Midget" Pocket Camera, tripod and 6 holders	18 00
1—8x10 American Optical Co.'s Portrait Camera, double swing	16 00
1—4x5 Flammang revolving back Camera, lens and tripod, new; reduced from $37 to	25 00
1—17x20 American Optical Co.'s Double Swing Portrait Camera, Bonanza Holder, good as new	75 00
1—5x8 Blair View Camera, single swing	17 00
1—Climax Outfit, including chemicals, complete	3 50
1—17x20 D. S. View Camera, good condition	40 00
1—5x8 Tourist Outfit, including 5x8 Tourist Camera Box, 2 Daisy Plate Holders, 1 Extension Tripod, and 1 Canvas Carrying Case, very little used. Price, new, $40.50, will sell for	30 00
1—10x12 Cone View Camera, Double Swing, new	52 80
1—5x8 Wet Plate Stereo Camera, 3 holders, case and tripod	25 00
1—6½x8½ View Camera and Lens,	12 00
1—6½x8½ American Optical Co. first qual. View Camera	23 00
1—4¼x5½ Ex. qual. Portrait Camera	17 50
1—5x8 American Optical Co. Stereo Camera	25 00
1—5x8 Blair Compact Camera, good as new	35 00

4—5x8 Feather Weight Holders, each	75
1—5x8 '76 View Camera, with lens, holder, case and tripod	15 00
1—4x5 Anthony's View Camera, with lens, tripod, carrying case and six double holders in good condition	16 00
1—43 B. Climax Portrait Camera 8x10 with Benster Holder,	20 00

Lenses:

1—pair E. A. Stereo Lenses	6 00
1—H. Fitz 8x10 wide angle Lens, with revolving stops	5 00
1—¼ size Harrison Lens	5 00
1—4x5 Rectilinear Lens	5 00
1—5x8 Morrison Wide Angle Lens	18 00
1—4-4 Harrison Portrait Lens	18 00
1—6½x8½ View Lens	3 50
1 set ⅛ Tubes	18 00
1—Matched pair E. A. Stereoscopic Lenses	8 00
1—14x17 Voigtlander Portrait Lens	60 00
1—No. 9, 11x14, Ross Portable Symmetrical Lens	60 00
1—11x14 Harrison Double-View Lens	15 00
1—4x5 J. A. K. Single View Lens	2 00
1—Extra 4-4 Roettger Portrait Lens	20 00
1—2A Dallmeyer Lens	82 00
1—14x17 Roettger Lens	45 00
1—set ¼ Darlot Tubes	13 00
1—4-4 Holmes, Booth & Hayden Portrait Lens	25 00
1—½ size Voigtlander Lens	25 00
1—⅓ size L. W. Krantz Portrait Lens	12 50
1—⅓ size C. C. Harrison Portrait Lens	8 00
1—½ size Darlot quick acting Portrait Lens, central stops	18 00
1—No. 6, 17x20 Darlot wide-angle Hemispherical Lens	33 00
1—8x10 Voigtlander Portrait Lens	80 50
1—4-4 Dallmeyer Group Lens	50 00
1—4-4 Walzl Portrait Lens	20 00
1—No. 2 Darlot Rapid Hemispherical Lens,	20 00

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AN Operator who is original, as well as a fine lighter and poser, will be open for position October 1st.

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W. C. ROWLEY, Elmira, N. Y.

FOR SALE — An Engraver's Line Negative, 6½x6½, in good condition. Cost $75.00, will sell very low.

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11 x 14	1 00	1 25	30 x 40	4 25	5 25
14 x 17	1 10	1 25	35 x 45	6 00	7 25
16 x 20	1 15	1 35	40 x 50	8 00	10 75
18 x 22	1 25	1 50	45 x 60	9 25	12 50
20 x 24	1 40	1 70	50 x 70	13 00	17 00
22 x 27	1 75	2 25	52 x 80	17 50	22 50
25 x 30	1 95	2 70			

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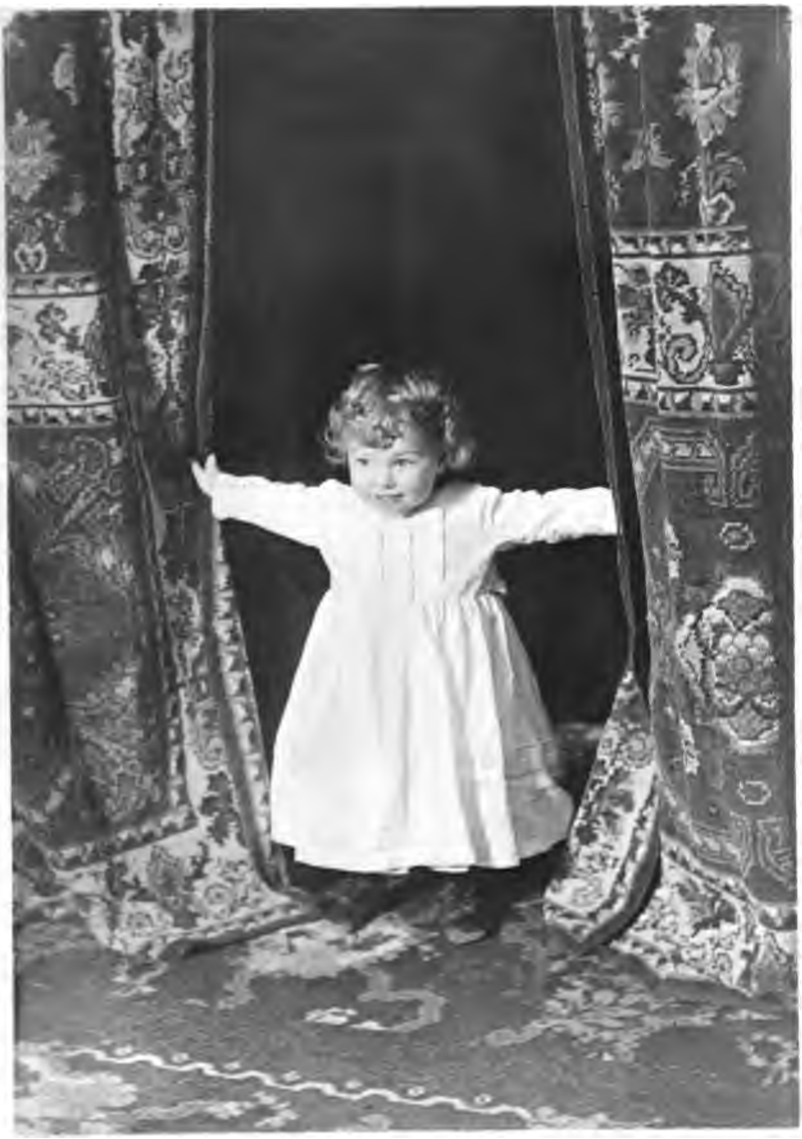


FLASH PICTURE MADE AT NIGHT WITH BLITZ-PULVER.

NEGATIVE BY H. PARKER ROLFE, PHILADELPHIA. PRINTS BY McCOLLIN & CO.

AMERICAN ACADEMY

AMERICAN
JOURNAL OF PHOTOGRAPHY.

Published [illegible]

VOL. XI. Philadelphia, [illegible]

THOMAS H. [illegible]

PHOTOGRAPHY IN [illegible]

[illegible] as photography [illegible] was [illegible] of [illegible] classes to the police authorities and [illegible] and evil [illegible] over necessity [illegible] police authorities [illegible] anything which has so far been discovered [illegible]

[illegible] classes were not slow to recognize [illegible] fact [illegible] successfully [illegible] themselves, [illegible] great [illegible] as to obtain [illegible] which [illegible] be [illegible] difficult [illegible] one who [illegible] collection of [illegible] police [illegible] and which may be seen [illegible] will be [illegible] at a glance [illegible] as portraits, the pictures are [illegible] of the [illegible] distorted [illegible] features [illegible] the almost useless [illegible] for which they are intended.

With the advent of the dry plate, instantaneous, and Blitz photography [illegible] opened, of which the various police bureaus were not slow [illegible] the [illegible] were formerly [illegible] wet plate [illegible] the [illegible] was [illegible] the skylight [illegible] the photographer [illegible] contract with the department [illegible] was [illegible] and the attempt at portraiture [illegible] with his guardians.

[illegible] when it took four stalwart officers to hold [illegible] picture. The [illegible] not only showed the [illegible] with [illegible] shut and tongue out, but also the hands of one [illegible] by the hair, while the hands of [illegible] was [illegible] the prisoner. Under the new [illegible] instantaneous when he least expects it, a [illegible] taken at the same instant, showing not alone the [illegible], but also the subject's natural position.

[illegible] especially in the capitals of Germany and France, while the old [illegible] still in vogue in this country and England. In the latter

SH PICTU

PARKER R

AMERICAN ACADEMY
MAR 20 1890
OF ARTS AND SCIENCES.

AMERICAN

JOURNAL OF PHOTOGRAPHY.

Published by **THOS. H. McCOLLIN & CO.**

VOL. XI. PHILADELPHIA, MARCH, 1890. NO. 3

THOMAS H. McCOLLIN, Managing Editor.

PHOTOGRAPHY IN CRIMINAL JURISPRUDENCE.

NO sooner was photography discovered than it was recognized as one of the greatest aids to the police authorities, and became a medium for the detection of criminals and evil doers, and the consequent prevention of crime. To obtain an exact likeness, and the duplication of prints or pictures, which could be sent out broadcast over the country at a comparatively small cost, thus familiarizing the various local police authorities with their lineaments, was a menace to the criminal classes, greater than anything which had so far been discovered for their suppression.

The criminal classes were not slow to recognize this fact, and took every means to circumvent a successful portrait being taken of themselves, while the great aim of the authorities was to obtain a serviceable portrait by which the subject might be identified at sight beyond a doubt. That this proved a difficult matter will be apparent to any one who visits a "Rogue's Gallery," as the collection of criminal portraits are called in police parlance, and which may be seen in all large cities and towns. It will be seen at a glance that, as portraits, these pictures are not a success, almost all of them having been unwilling sitters and distorted their features, and as a result are almost valueless for the purposes for which they are intended.

With the advent of the dry plate, instantaneous, and Blitz photography of the present day, a new era opened, of which the various police bureaus were not slow to avail themselves, where formerly in "wet plate" days the criminal was taken to the "skylight" of the photographer who had the contract with the department, and which was often squares away from headquarters, and the attempt at portraiture would end in failure, even after a physical struggle with his guardians.

The writer recollects one instance in which it took four stalwart officers to hold a prisoner while the "artist" got his picture. The "cabinet" not only showed the face horribly distorted, with eyes shut and tongue out, but also the hands of one officer holding his ears, the second officer holding him by the hair, while the hands of the third showed as he was choking the prisoner. Under the new regime all such scenes fall away; the subject is now taken instantaneous when he least expects it, a perfect front and profile being taken at the same instant, showing not alone the features at rest, but also the subject's natural position.

This applies especially to the capitals of Germany and France, while the old system is still more or less in vogue in this country and England. In the latter country much dissatisfaction, photographically speaking, has lately cropped out with the Scotland yard authorities for their adherence to the old methods, and on more than one occasion the question was brought up in the House of Commons, so far, however, without bringing any response from the Home Secretary.

In France, the photographic methods, which are extraordinarily accurate, are supplemented with a series of measurements known as "Systeme Anthropométrique." The photographic department of police headquarters in Paris now consists of a series of rooms, one for making the exposure, into which opens a waiting-room, and several dark rooms. The main room is so arranged with mirrors that face and side views are taken at the same time on the same plate. In connection with this department are facilities for making silver or bromide prints, mounting, etc.; all work and detail is done within the department without any aid or knowledge of outside parties.

It is, however, in Berlin where the highest development of police photography has been reached. Formerly the work was done by the well-known firm of Zielsdorf & Adler. Now it is done by employees of the department in the new Präsidial building erected in the "Alexanderplatz," where a series of rooms connected with the criminal department have been set aside for photographic purposes, and are so constructed that portraits can be taken at any hour of the day or night, the illuminant being Blitz Pulver, and it is done so quickly that the accused introduced into the chamber or passage-way on his way to a hearing is actually photographed before he even has presentiment of what has taken place. This is accomplished as follows: When the subject comes to within two or two and a half metres of the concealed cameras, a gum bulb is pressed by the operator, who is also concealed. This mere pressure not only opens the shutter but simultaneously ignites two Blitz flash lamps, which are placed at right angles in front, about six feet to the right and left of the subject. A simple pressure of the pneumatic bulb, a flash, and before the subject can get over his surprise, he is led out of the room, while the plate is developed and fixed in the adjacent dark room. It is said that the exposures obtained by this process have been almost universally successful.

JULIUS F. SACHSE.

A WORD IN REPLY.

OUR esteemed friend and colleague, the editor of the *British Journal of Photography*, makes some strange statements in a leader entitled, "Development by Means of Vapors," which appears in the number for February 21st.

It seems that he has again availed himself of our columns and reprinted the article on "Development with Pyogallic Acid in Connection with Ammonia in Vapor," by Theodore H. Luders. The editorial strictures on this article are too lengthy to be reproduced in full, but the following will give an idea of the character of the article:

"Mr. Theo. H. Luders commences by premising that 'the use of vapors in picture making'—we presume he means *photograph* making—'was one of the first methods;' and, after briefly referring to the Daguerreotype process, proceeds to say that there does not seem to have been any further application of vapor since then, except for fuming silvered albumen paper. In that statement the writer exhibits what we think his own compatriots especially will deem a singular ignorance of facts."

As "compatriots" of Mr. Luders we must say here very emphatically that not only do the points referred to *not* betray ignorance of facts, but on the contrary show a very good acquaintance on the part of Mr. Luders with the history of alkaline development in its practical aspects.

Among the numerous lessons that the practice of the art of photography has taught us we have laid the following one particularly to heart,—namely, that while it is one thing to make an experiment successfully in amateurish fashion, it is quite another thing to continue the successful experiment on the large scale required by regular photographic business. We mean by this to say that the experience of every *successful* photographer who ever developed a plate has hitherto been directly in favor of the use of alkalies in solution, not in vapor; and consequently, when Mr. Luders asserts that the use of vapors in photography has been limited to the Daguerreotype process and the fuming of paper, he is quite correct so far as practical photography is concerned, and we fully endorse the very points selected by the editor of the British journal for unfavorable comment.

It is quite pathetic, also, to observe the pains taken by our genial friend, the editor of the British journal, to instruct us all concerning the famous discovery of Mr. Anthony, of New York, concerning the development of Tannin plates by the vapor of ammonia. The discovery of alkaline development is due to the labors of Mr. Anthony in conjunction with Mr. Eugene Borda, one of Philadelphia's old-time amateurs.

Thanks, Mr. Editor; we have known all of this for some time past.

THE METRIC SYSTEM.

THE article in your last, on the metric system, does not seem to me to set forth all the facts pertinent to the question.

The personal equation matter is not so one-sided as represented. *A priori* the units of the metric system are just as easy to form thought elements as those of the other, and when formed the translation required is from the English units to the metric for comprehension, and not *vice versa* as assumed. This is the case with most of our German friends, who form no small part of our scientific population. But, further, the metric system is used by the whole civilized world, except English speakers, and among the latter is used by all chemists. It is actually in universal use by chemists throughout the world. This is a good reason why all arts dependent on chemistry should use it, such as photography, medicine, and pharmacy. And it modifies the personal equation, because most English chemists think in grams. In my own case, I always translate the English units, not the metric. I know many chemists and physicians who do likewise.

It may to some look like an extravagant statement, but it is simple truth, without exaggeration, that the English system is a relic of barbarism that impedes general education.

It has been calculated by teachers, published by the Metric Bureau, and never traversed in the writer's knowledge, that the substitution of the metric for the ordinary system would save a year of the school-life of every child. What labor-saving machine ever invented is equal to this. There are about fifty factors to be memorized in our system. In the metric but one. And this is the same as our ratio of notation. Hence, as a practical matter of education, the whole time spent in learning by heart tables of weights and measures is wasted.

In a piece of work now in progress here, in which a comparison of many analyses is required, in which the results have been mostly published in some form of the old system, because of supposed public utility, it will cost hundreds if not thousands of dollars to bring them into a common form adapted for mutual comparison with each other. Precisely the same confusion exists in photographic formulæ, as the writer well knows from a late attempt to compare a number. Mr. Wallace's article cites the unity of minim and grain as an advantage, but it is the sole instance of correlation between weight and measure in the old system, while every measure and weight corresponds in the metric. Why use a bad thing when a good one is at hand ?

I think very few chemists, at least of the younger class, would accept the statement of "uncertainty in rapid calculation." On the contrary, it is the metric system that would be preferred because of the greater rapidity and certainty of calculation.

Definite ideas of weights and measures come by actual use, and not by thinking about them. And if the use is begun early in life, the idea is formed more easily and perfectly than when commenced later.

Our professional schools are responsible for the continued toleration of the "American" system. At the present time, nothing but the metric system should be taught in such schools, and every druggist should be required to possess a set of metric weights.

This would not interfere with the practice of those too old to change. The old system is well called the American system. No other nation uses it. The Imperial pound and gallon are the officinal measures of England, and the pound Troy is no longer in English text-books, while the Winchester or American gallon disappeared long ago. When we use imported measures or graduates they are not the same as ours.

A small part of the metric system suffices for the photographer. The following table represent a form the writer has found well adapted for professional students.

1000 millegrams make one gram.
1000 grams or cubic centimeters make a kilo or liter.
1000 kilos make one ton.
65 millegrams make one grain.
15½ grains make one gram.
31 grams make one ounce Troy.

The last table is only because of our present transitional state. Millegrams, grams and kilos are weights, and the metric ton is 2204 pounds, between our long and short ton. Cubic centimeters (usually written c.c.) and liters are measures. The actual weight of any measure of liquid, if its Spec. Grav. is known, is got by multiplying the corresponding weight by the S. G.

In writing metric formulæ, the point should stand between the grams and millegrams. Three figures on the right of the decimal point are millegrams, all on the left grams. In the arts the millegram is never divided.

The present Pharmacopeia uses parts by weight. The Washington Camera Club print their formulæ in parts per hundred, thus :

Hydroquinone, ... 2.25 per cent
(In metric terms it would be 22.500.)
Sodium sulphite, C. P. . . . . 10 per cent.
(In metric terms it would be 100.000.)
Distilled water, ... 87.75 per cent.
Make up to one liter.

POTASH SOLUTION.

Potassium carbonate, C. P. . . . . 15 per cent.
(In metric terms it would be 150.000.)
Sodium sulphite, C. P. . . . . 10 per cent.
(In metric terms it would be 100.000.)
Distilled water, ... 75 per cent.
Make up to one liter.

For use dilute No. one, half, add 3-6 drachms, or 10-20 c.c. potash.

The change from per cents. to grams needs only a change of the decimal point. Hence no advocate of the metric system has any objection to a percentage system. Duplex graduates are for sale with c.c. on one side, and fluid ounces on the other, and the c.c. are good for percentage. Chemists generally make up their formulæ on a basis of one liter, *i.e.*, 1000 c.c., as a convenient quantity.

Another change that seems to me greatly needed in the mode of stating photographic formulæ, is to give the strength actually used, and not that of the stock-bottle. Every man with brains enough to be a photographer at all, can make his stocks of a degree of concentration to suit his convenience, or the size of his bottles. What must be known is the strength of the solution actually applied. Much space would thus be saved in description, and different formulæ could be compared directly, which now requires many figures. Thus the Washington formulæ as used is half the given formulæ. Or the water can be doubled.

I am pretty sure that any one who will actually use the graduates and weights of the metric system in compounding solutions for a short time (not attempt to translate equivalents) will soon find them satisfactory.

W. H. SEAMAN, M.D., *Washington, D.C.*

OUR illustration (a Blitz picture) is the work of Mr. H. Parker Rolfe, of Philadelphia, who is very successful in taking fine flash pictures at night with Blitz-Pulver. There are several different subjects, all, however, of the same little boy. In one the little fellow is just emerging from an inner room, with the parted curtains still in his hands; he is surprised at the bright flash of light; the camera has, however, done its work, as you see him just there with a natural expression of surprise. Another when he is sitting in a big easy chair with his favorite cat in his arms, but they are caught with the flash camera before Miss Puss has time to make her hasty departure.

A SEASONABLE SUGGESTION.

THE first three months of the year are in this latitude generally supposed to be the least favorable for the amateur photographer, and the exercise of his hobby. The fields and pastures are black; hillsides and ravines, so inviting in summer, are now bleak and desolate; and the trees, under whose grateful shade we rested during our summer outings, are now leafless and bare. Christmas-tide, with its joys, is past and gone; the various Christmas trees, with their gaudy dressings, our presents, groups, and visitors, have been "taken" by Blitz or Sun, and most amateurs count their winter's work completed. Some enthusiastic votaries have kept their practice alive by copying pictures, old documents, maps, seals, or objects of virtu or antiquity, and other subjects, not forgetting sundry interiors; still, as such work partakes more of the dull routine of labor than pleasure, the interest in photography has naturally more or less flagged, while the amateur sets aside his outfit until spring shall come, when he can again strike out in pastures new, and find food for his camera.

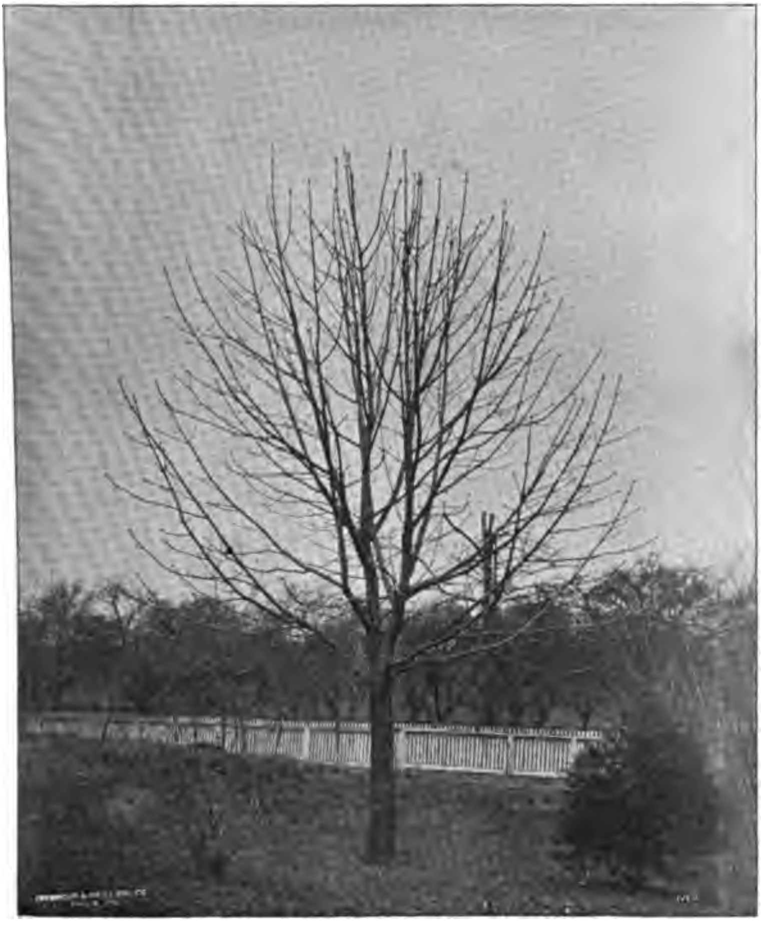
To the "photographic studiosis," as a German contemporary designates the enthusiastic amateur, there is no need of waiting until the country is again clothed in pristine verdure. It is this class whose especial attention we would call to our illustration, while our suggestions will apply to the whole guild of camera carriers.

There are but few persons, if we except the arborist, who have any idea of the difference existing in tree structure, or the diversity in shape and growth of the limbs of the various species.

Nothing will surprise the intelligent observer more than the marked difference between our common trees, which we have known since childhood, without taking special notice of their peculiarities, as can be seen by a comparison of 8 or 10 photographs of as many different varieties, the negatives being made at the present season, while the subject is bare and leafless.

The wide divergence in characteristics of growth,—shape, bark, etc.,—as shown by such comparison, will prove a revelation to many a well-informed person, and opens a wide and interesting field to the amateur photographer and student.

In our suggestion of this study we would advise a selection of marked, well-grown specimens, that can be taken on the plate so as to preserve all the features of the tree without being secondary to any surroundings. It makes no matter whether the subject be a monarch of our primitive forest, or some favorite specimen of orna-



A TREE STUDY

NEGATIVE BY J. F. SACHSE. [illegible]

mental growth, introduced from foreign climes; each individual variety has its peculiar characteristics. Photograph the tree in a strong light so as to bring out the detail of the bark, etc. It would be well to carefully note the distance from the butt of the tree, or the point of the compass, if there is no other way of locating the spot where the tripod was set; this note is for reference in the future, so that after the spring has opened, and the trees are once more clad in their verdure, another trip can be made to the same spot, and a plate made of the same tree in its glory. This study can be further supplemented by photographing the tree while the buds are bursting, when the leaves are out, and then again in the fall when the leaves are either in their autumn glory or after they are brown and falling, using orthochromatic plates; further, it above suggestion be carried out, after the leaves have again fallen a fifth plate can be taken of the same subject, and then compared with the first plate; it will show the marked changes or growth which has taken place within the year, and which are not perceptible to the eye.

It will be seen that for these comparative plates to be of value great care should be taken to set the camera at the same point for the different exposures.

To any amateur having a taste for such research and experiment, we would point out the interesting groups of flowering trees, where not alone the tree structure, but the flowers, the leaves, and the fruit all tend to form an interesting group of subjects for the camera.

Take, for instance, the common Horse Chestnut (*Æsculus Hippocastanum*), a large symmetrical tree. In a photograph taken at the present time, we would have the structure or framework of the tree; the next plate we would suggest when the tree is in blossom, covered with a wealth of erect spikes or panicles of flowers, which stand out in bold contrast with the bright green foliage; then for a third plate, the same subject after the fruit is well formed, and the foliage has reached its fullest development.

Any one who takes up the study of this subject will also find the bursting leaf-bud, the young leaf, the flowers separate and in panicle, the developed leaf, the green fruit burr, as well as the burr when opened by the frost, exposing the ripened fruit, all picturesque subjects for the camera.* A series of photographic studies of this kind, carefully executed, would form an album far more interesting and instructive than the ordinary view or portrait album, so common and so listlessly gone over by the visitor to whom it is shown, and who for politeness sake goes over page after page, without noticing what the pictures represent.

In the same group of trees with the example mentioned, we would call attention to the Catalpa (*C. Syringæfolia*), with its large heart-shaped leaves, and large pyramidal clusters, a foot long, of white and purple flowers; the Paulownia (*P. Imperialis*), a magnificent tropical looking tree, with leaves twelve to fifteen inches in diameter, and large clusters of lilac flowers; the magnificent native "Tulip Poplar" so called (*Liriodendron Tulipifera*), with its erect growth, broad, glossy, fiddle-shaped leaves, and beautiful tulip-shaped flowers and curious seedpods; not forgetting the Magnolias, Conspicua, Acuminata, but especially the "Macrophylla," or large-leaved, with leaves two feet in length, and a profusion of dull white flowers, of the size of a man's hat. These specimens will suffice for one group.

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* The leaves, buds, flowers, and other detail are pinned against a white or neutral tint background, and focused on the plate as large as possible without crowding the plate. In a future paper we trust to be able to lay before our readers the results of some of our experiments with leaf structure, representing trials extending over the period of several years.

Then we have the various native forest trees, such as the Oak (*Quercus*), the Maples (*Acer*), Ash (*Fraxinus*), Locust (*Robinia*), Elm (*Ulmus*), Linden (*Tilia*), Poplar (*Populus*), Gum (*Liquidamber Styraciflua*), and many others, all having characteristics which may be plainly shown with the camera.

The various fruit trees, Cherry, Peach, Plum, and Apple, all form beautiful subjects. In connection with this group of subjects, we will state that on one occasion when we asked a gentleman, who has one of the largest collections of lantern slides in the country, the question, which he considered the finest slide in his collection, he unhesitatingly answered, "An apple tree in full blossom." He further volunteered the information that he had eight slides of this subject made from as many different negatives.

Our field of study can be extended to the large family of flowering shrubs, or minor trees, as the Dogwood (*Cornus*); the weeping trees, as the Ash, Beech, Birch (*Pendula*), etc.; the Rose of Sharon (*Hibiscus Syriacus*), Hydrangea (*H. Paniculata Grandiflora*), Lilac (*Syringia*), Purple Fringe (*Rhus Cotinus*), and many others.

It will be seen by reference to above list (although not a hundredth part of what we might have made it) how great this field is for study and development, and wel worthy of the attention of all intelligent amateurs, especially to the lady votaries of our art; and this independent from the fact that it would be the means of leading many persons to a closer study of the secrets and beauty of nature.

At the same time we cannot refrain from cautioning the neophyte, if he wishes to take up this study as above suggested, from attempting too much at the start; it is better to complete two or three sets, thoroughly and correct, than undertake a dozen or more subjects, and complete none.

The plan pursued by the writer is first to select the specimen tree; then after a satisfactory position for the camera has been obtained, plumb the camera with a plumb-line, the same as a surveyor's level, then drive a large peg directly under the centre,—this securely marks the location for any subsequent exposures,—then level the camera, pointing as near the centre of the tree as possible; the centre can also be marked by tacking a small piece of white fabric on the tree on a level with the lens.

Our illustration, a young Horse Chestnut (*Æsculus Hippocastanum*), a specimen tree such as is within the reach of almost any one, whether in the city or country, is purposely selected to illustrate our suggestions, and is made on a 4x5 plate, to show the student that a large size camera is not essential for the purpose. Another matter of value, in connection with the subject of photographing leafless trees, is the preservation of the outlines of historic trees,—once landmarks in the history of our country or of its progress,—guide posts, which are getting less and less every year, as they succumb to the ravages of time, or fall prey to the rapacity of man. As yet there are still a number of such trees throughout this country, and the searching out and tracing the traditions clinging to these silent monitors by the roadside, or as they stand alone in the field like a grim sentinel, will be found an enjoyable divertisement.

We should be pleased to receive and note any results from our readers who may take up this special line of photographic study, as outlined in above suggestions.

Leopard, Pa., February, 1890. JULIUS F. SACHSE.

SOME POSSIBILITIES OF THE CONTINUOUS FILM.

SINCE the first introduction of the continuous sensitive film, many devices have been invented for the purpose of handling and using them, and some of these have been very successful, both mechanically and financially.

Other forms have been suggested in various papers and writings, but have never been manufactured and put on the market.

There are still others which, while probably undesirable for general use, might be very useful for special purposes of scientific investigation, legal evidence, or actual detective work, and for reporting for the press in pictures instead of words.

One of these devices, which is similar in some respects to the phonograph, and also to those self-registering instruments used for recording pressures, temperatures, barometric variations, etc., will be presented here with some of its possible uses.

Imagine first an extremely perfect photographic lens, covering a field of say one inch, and having a short, fixed focus, so far similar to a small hand camera.

For a sensitive surface, use a long flexible film with a device like a roll holder, but driven by clock work in such a way that the strip of film is in continuous motion except for an instant at the time that enough of the surface has passed to make a new space to expose another little circle or square. At the time of this stoppage an automatic shutter exposes the lens and the invisible impression is made.

Now suppose this little series of operations, all automatic, to be regulated in such a manner by clock work, as to constantly repeat in any desirable part of a second with a film of practically unlimited length, and we would have a complete record of any event or ceremony where sufficient light was to be had.

Among the many purposes for which such an apparatus could be used would be : Presentations, reviews, and for press reports, ship launches, surgical operations, movements of machinery, steamships and sailing vessels, deciding races with exact time, views of submarine explosions, and the movements of animals more continuous and complex than possible by the process of Muybridge, etc.

In developing and finishing there need be no difficulty that has not been already overcome, so we may go on to the use of the finished strips or ribbons of pictures.

With an arrangement like the electrical Tachyscope the little pictures might be projected in succession on the screen by using another clock work device to feed the strips, and the result would be a picture with motion, such as a vessel tacking and sailing off with the motions of the waves, etc.; or if it was a submarine explosion, there would first be the round swelling heave of the waters, then the white dome of spray mounting higher and higher, broken by scattering rock, etc., until its utmost height was reached, and the whole collapsed into a boiling cauldron of foam, from which in ever-widening circles the waves gradually subside to their original state, and our pictures we have to tell the story of the great work accomplished.

And so with artillery firing explosions of bombs against targets and in the earth and air, the evolutions of troops, and of war vessels, and many things impossible now to imagine or think of.

Then if a lantern slide can be made sufficiently perfect to allow of enlarging to twenty or thirty feet in diameter on the screen, a *perfect* negative of one inch in diameter would admit of sufficient enlargement to make a useful picture, and the best view of many might be chosen, instead of having to be satisfied with the result of perhaps one shot at a moving object.

Perhaps this all seems theoretical and visionary, but there is no mechanical difficulty that could not be overcome; and as for the chemical and optical work, fully as difficult problems are solved every day.

When to the above we add the possibility of color photography, which none of us are willing to give up, it is within the limits of scientific possibility to make moving pictures in their natural colors.

This may never be accomplished by one person, but might be done by the combined efforts of a club or society with sufficient time at its disposal.

T. H. L.

ENLARGEMENTS.

IT is much more desirable to have large pictures than it is to make them, and if it is practicable to make small original negatives, and obtain enlargements from them which shall be as sharp and full of detail as the prints from the original negatives, much labor and trouble in the field would be avoided.

In order to consider the question of the value of an enlargement, and to estimate how near it may be considered to be comparable with a print from an original negative of the same size, it may be worth while to examine into the philosophy of the question, and see what really takes place when, instead of placing the small negative in contact with the paper, it is placed at a distance from it, and the divergence of the rays of light is used to obtain a larger picture. With the photographic details of the process it is not now proposed to deal, but the optical side of the question will bear examination, and some points connected with it may be found interesting.

If a negative is perfectly sharp and distinct in every portion, and the definition of objects at various distances equally good, it is surprising to observe the extent to which it will bear enlargement. Of course, to say that it is *perfectly* sharp, would be to admit that it would bear an indefinite amount of magnification without any loss of definition, but using the word perfect in its ordinary acceptation as referring to a sharpness quite possible of ready attainment, the amount of enlargement which may be permitted is very great. On the contrary, a softness and lack of microscopic definition, which in no way detracts from the appearance of a print made from the original negative, and indeed in the opinion of many is more artistic and effective, unfits it almost entirely for any enlargement without producing a blurriness and indistinctness which is almost painful.

A negative to be used for enlarging should, if possible, be taken with that object in view, and by the use of every possible means rendered as sharp, clear, and well-defined as possible. A small stop in the lens, and a clearing reagent in the developer, together with ample time, both in the field and in the dark room, are necessities.

It must not be forgotten that the picture, in any case, is simply a matter of the distribution of light, and that in enlarging an image already made by one impression of light, upon a sensitive surface, we are calling upon a second installment of light to do the same work. This action is not greatly different from the use of a relay in telegraphing, where a feeble current passing along the main line simply throws a local battery in and out of circuit, and the greater portion of the work is done by the strength of the local battery, while the feeble impulses along the main line must merely indicate the action.

The difference which may be seen in the brilliancy of a lantern-slide when thrown upon the screen by a good or a poor light, may serve to indicate the influence which this secondary illumination has upon the enlarged image, and it is an important element in the theory of enlarging. If we take two negatives of the same subject, one quite small and the other large, and then make an enlargement from the small one to the same size as the large direct picture, they will be comparable in several ways with interesting results.

Unless the focal length of the lens with which the large negative is made is just as much greater than the small lens as the difference in the size of the pictures, the depth and definition in the shadows of the small negative will be much the better, and this advantage will be retained in the enlargement, and the reinforcement ot the second installment of light during the enlargement will bring out depth and effect from the small negative which the large one cannot possess. Again, this effect is shown again and again by the impression which is made by a good lantern-slide upon the screen, an effect which is due not only to the actual size of the picture, but also, and very largely, to the proportional increase in the focal distance at which the picture is viewed.

This question of the relation between the focal length of the lens with which a picture is taken, and the focal distance at which it is *seen*, is a matter which has hardly received the attention which it deserves, and it is of especial importance in connection with this matter of enlargements. As a matter of fact, there is but *one* focal length which is correct for each picture, and that distance is the distance at which the finished picture is to be held from the eye. The object of a picture is to produce upon the eye the same effect as the original subject. When the photograph is taken, the rays of light from the object pass through the lens, and form the image upon the ground glass at a definite distance behind the lens.

If now we make a transparency from the negative, and stand in the same position as the camera, and hold the transparency before the eye, moving it to and fro, until it just coincides with the actual view beyond, it will be found that this coincidence just occurs when the distance of the transparency from the eye is equal to the focal length of the lens with which the picture has been taken. If the picture is held at any other distance, either greater or less, it may be pleasing, but it will not be correct. The normal distance of distinct vision is about twelve inches, and this is the best focal length for lenses to be used in making photographs for illustration, or to be held in the hand for examination.

For large pictures, to be examined from a distance, however, it would be most difficult to work with lenses of long enough focus to follow this law, and it is just here that the enlargement has the advantage, since the magnification of size is also equivalent to a corresponding multiplication of the focal length, and the correct point of view is removed to a corresponding distance, while the large direct picture, which has been taken from a focal distance proportionally not so great, fails to look so natural or so effective. HENRY HARRISON SUPPLEE.

EMULSIONS.

Read before the Photographic Society of Philadelphia.

THE accompanying formulæ for the preparation of a gelatine emulsion for photographic purposes are the result of several years of constant study and experimentation on the part of the writer, and it is believed that if the details of the process are strictly carried out, with but an ordinary degree of ability, plates fully equal to the best brands in the market can be easily and uniformly prepared.

AMMONIA-NITRATE EMULSION.

No. 1.	Boiled water	1 oz.
	Iodide ammonium	5 grs.
No. 2.	Chloride ammonium	20 grs.
	Water	4 drachms.
	Acid, nitric, a drop or two to render the solution acid.	
No. 3.	Nitrate silver	60 grs.
	Water	4 drachms.

To the nitrate of silver dissolved in the water (No. 3) add, drop by drop, the solution of iodide ammonium (No. 1), until the precipitate of iodide of silver formed ceases to dissolve in the solution. Then pour in the solution of chloride of ammonium (No. 2), wash the chloride silver formed with three separate waters, draining each time; then add some pieces of broken glass to the moist mass, and then 16 grains of Nelson's No. 2 gelatine, and dissolve with gentle heat (temp. 90°–100°). Shake well, and add the following solution: Water, 4 drachms; bromide potassium, 43 grains; liquor ammonia, ½ drachm. Pour this solution at one time into the bottle containing the melted gelatine and chloride of silver. Cork the bottle to retain the ammonia. Keep at a temperature of 90° for fifteen to twenty minutes. Test the emulsion by a drop on glass, looking through by transmitted light from a match to see if all reddish color is gone. When this has disappeared, and the emulsion viewed by transmitted light is grayish blue or green in color, the heating has proceeded far enough; and then 120 grains of Heinrich's gelatine (previously softened in water and melted at a temperature higher than 90°) is added to the emulsion. This is to be well shaken, and then allowed to cool by gelatinizing it slowly upon the sides of the bottle. Let it stand six hours. Remelt at a temperature of 100°, gelatinizing again upon the bottle. Allow to stand six hours, and melt once more. It is now ready to be mixed with the boiled acid emulsion (see following formula). Or, if the ammonia nitrate formula is alone to be used, the melted emulsion as just made is to be poured into a dish and allowed to cool and set; when cold placed on a clean cloth (mesh 1–80 inch), squeezed through, the finely-divided mass well washed, drained, and pressed under weight to expel excess of water, remelted, filtered through white silk, and then coated on glass. The final amount should not be more than 3 oz. If more, then the gelatine has absorbed too much water in washing; to avoid this, press longer. In preparing this emulsion it has been found that the presence of the bromide, with heat and free ammonia, favors the conversion of the chloride silver into the bromide. Another feature of the process is that the nitrate silver does not come into contact and is not mixed with the gelatine at all, until converted into the chloride. As nitrate silver acts quickly and very strongly on nitrogenized animal compounds like gelatine, there must always be more or less decomposition when the two are mixed together, if but for a short time. By the method just described this is entirely avoided, and the inert and insoluble chloride silver exerts but little action on the gelatine. The amount of iodide silver in the formula (formed by precipitation, etc.) is the proper quantity to be combined with the bromide, and is precipitated also when the chloride silver is thrown down.

The time at which the melted gelatine (Heinrich's) is added is also an important point. If the heating operation is carried on too long before this is added, the bromo-iodide of silver becomes very granular, and in the subsequent operation of coating the plate is apt to settle to the surface of the glass, leaving an upper layer of finer and more insensitive granules of the salt. It should therefore be heated only long enough to dissipate the red color when viewed by transmitted light. The subsequent operations of repeated melting and cooling after the thick gelatine has been added serve to give rapidity without producing a coarse granular deposit.

This formula is particularly suited for employment by amateurs, as its manipulations require but little apparatus and but ordinary care. The emulsion is one of considerable rapidity, equal to about 40 sensitometer as compared with the Cramer plate of same number, and gives excellent negatives. This formula, however, can be still further improved upon by mixing the emulsion with a boiled emulsion prepared as follows:

BOILED EMULSION.

No. 1.	Gelatine, Nelson's No. 1	15 grs.
	Water	2 ounces.
	Bromide ammonium	43 grs.
No. 2.	Nitrate silver	66 grs.
	Water	1 oz.
	Nitric acid, sufficient to render solution acid.	

Add No. 2 to No. 1, drop by drop, shaking frequently, both solutions having been previously warmed to 150°; then add 1 gr. iodide ammonium, bring temperature to boiling point and boil twenty or thirty minutes, until a drop of the emulsion tested by transmitted light has lost its red color. Allow the emulsion to cool to 100°, and then add 120 grains Heinrich's gelatine (previously softened in water and melted at a temperature of not over 100°) to the emulsion. Cool this slowly by allowing it to gelatinize on the sides of the bottle; allow to stand six hours, remelt, gelatinize again; remelt and gelatinize once more after it has stood the same length of time. The emulsion is now ready to be melted and mixed with the ammonia nitrate emulsion, and then cooled, washed, pressed, filtered, and coated as previously described. A much improved character is obtained by the mixing of these two emulsions, and should the operator possess sufficient skill, this method should be preferably followed.

A few additional notes on some of the details of these processes may prove useful.

Temperature.—In order to produce the most perfect results, all these manipulations should be conducted in a room lighted with non-actinic light, and kept at a uniform temperature of about 100°. This not only tends to keep the emulsions of a uniform character, but greatly facilitates the straining and mixing of the acid and alkaline emulsions. When the plates are coated they can be immediately passed through a small opening into an adjoining room, kept at a uniform temperature of 50°, with free circulation of air, and dried either on racks or on nails on the wall, face outwards.

Glass.—This should be previously cleaned by soaking it in a mixture of equal parts of nitric acid and water, well washed, dried on racks, polished with cuttle-fish bone and water, using a piece of well-washed flannel. This should be washed with a weak solution of soda, so as to remove any traces of oil or grease. The plates, after being dried, should be edged with a thick solution of gum tragacanth, by means of a small camel's hair brush tied to a short thin stick, with the end of the stick projecting a short distance so as to act as a guide for the brush. The plates should then be stored in the hot room until wanted.

Filtering.—If this is done in the hot room it can be accomplished by passing the melted emulsion through absorbent cotton. Otherwise a hot-water jacket should be used for the filtering funnel, and the emulsion passed through well-washed white silk or cotton.

WILLIAM BELL.

THE PHOTOGRAPHIC SOCIETY OF PHILADELPHIA.

A STATED meeting of the Society was held Wednesday evening, March 5th, 1890, the President, Mr. Frederic Graff, in the chair.

The Secretary read a communication from Mr. W. E. Barrows, President of the Welsbach Gas Light Co., announcing that the company had fitted up a room at their factory in Gloucester, N. J., for photographing with incandescent gas light, and inviting the members to make use of the room, and to visit the factory and witness the manufacture of the light. On motion the invitation was accepted with thanks.

It was also announced that pictures from this Society for the New Castle exhibition might be sent unmounted. They would be mounted by the committee in charge of the exhibition at a trifling cost to exhibitors. It was requested that exhibits be forwarded as early as possible to allow ample time for mounting, etc., after arriving at destination.

Mr. Stirling, chairman of the Lantern Slide Committee reported satisfactory progress in the preparation for the exhibition to be held March 12th, and the prospects of a fine display of representative work of the members.

At the last conversational meeting slides had been shown from the Chicago and Newark clubs, each sending fifty slides. Slides were also shown by Messrs. Dillon, Mitchell, Wood, Hanawalt, J. H. Bradway, Sullivan, Marcellus and Fulmer.

Mr. Sterling also announced that forty-three English slides representing the Society's share of the 100 sent to this country by the Camera Club of London on account of the last English Interchange, had been received. They had been selected by lot impartially, and after the meeting would be distributed in like manner to the ten members whose slides had been selected to send abroad. The members entitled to receive slides with the number due each were as follows: C. R. Pancoast, 6; George Vaux, Jr., 4; Ellerslie Wallace, 4; John Bartlett, 2; E. W. Keen, 1; J. H.

Burroughs, 1; R. T. Hazzard, 2; W. D. H. Wilson, 2; W. H. Rau, 8; J. G. Bullock, 5; John Carbutt, 2; Robert S. Redfield, 6,

Mr. Stirling stated that hereafter the Interchange slides to be sent abroad would be simply loaned, the idea of permanent exchange having been abandoned, so that eventually each member would get back all slides loaned to the Interchange.

The Committee on Membership reported the election of Mr. Henry Troth as an active member.

Mr. Bell presented a paper on "Gelatine Emulsions." In introducing the subject, he said he thought that it was the late president of the Society, Mr. Bates, who was first in this country to bring into use the gelatine plate. In his frequent trips to Europe, Mr. Bates had had Mr. Kennett prepare some of them and they were brought over. It was a long time before Mr. Bell had heard of anybody using them here. The next one he heard of making emulsions was Mr. Geo. W. Hewitt. He, himself, had also been more or less engaged in searching for gelatine emulsions. The next one that was successful was Mr. Carbutt. Not having himself been successful he did not claim anything. Mr. Hewitt's plates were very good.

Mr. Bell then proceeded to read his paper, which, he said, was the result of a good many years' experience.

At the conclusion of the reading, Mr. Bell said that if any of the members were "chemically inclined" he would ask them to take the No. 1 formula and test it to see if it was what he claimed for it.

Referring to the sensitiveness of plates, Mr. Carbutt asked "What does 40 or 80 mean?"

Mr. Coates—I think it means the gullibility of the buyer. I have bought "40" plates and found "20" much better.

Mr. Browne—Mr. Bell, in the early part of his paper, alluded to Mr. Geo. W. Hewitt's experiments. So far as I know, Mr. Hewitt was one of the earliest experimenters with gelatine plates, and certainly Mr. Hewitt's process and the results that he succeeded in obtaining were very remarkable. There was one peculiarity about his plates that I have never seen in any purchased plates, and that was that the appearance of the image was more beautiful than I have ever seen in a commercial plate. The appearance of the image was slow and remarkably beautiful. I think Mr. Carbutt saw some of them. I do not know that Mr. Hewitt claims anything original in that process, but there was one difficulty in his plates which was a very serious one and which he was never able to overcome, that was the liability to frill. I used many of his plates, but there was that uncertain character in the matter of frilling which made it to me very disagreeable. I think that in the future Mr. Hewitt will always receive credit as being one of the very earliest experimenters in gelatine dry plates.

Mr. Bell—Mr. Hewitt developed the gelatine plate precisely as a collodion dry plate, bringing out the details and finishing with ammonia sulphate of iron and silver.

Mr. Suplee—Do you think there is any advantage in that?

Mr. Bell—Oh, none at all; you can get all the density you want without it.

Under the head of "verbal communications," Mr. Carbutt referred to the subject under discussion at the previous meeting—that of deposits on the cover glass of slides—saying that he had received a number of slides from Mr. Pancoast, accompanied by a lettter in which he said, "Referring again to the incrustation on lantern slides, I was looking over some old slides I made in 1883 (possibly 1882), on some of your A plates, and find them in A 1 order, no discoloring, mould, or incrustation whatever. They were not varnished or protected in any way, and were subject to the same conditions as the one I showed you at the society." In another letter of a later date to Mr. Carbutt, Mr. Pancoast wrote on the same subject: "I send you by this mail one of the lot I spoke of in a previous letter in order that you may see how perfectly it has kept. It was in the same box as the other slides and subjected to the same conditions as those which show such a marked incrustation. I think the glass is B. P. C., at least the plates were your regular A plates. These slides were made by contact printing, and developed with oxalate."

Mr. Carbutt showed a "blue-print lantern-slide" sent him by Mr. Barbour, of Chambersburg, who had published the method in one of the journals.

Mr. Bell called attention to a portion of the report of a previous meeting in which the words occurred, referring to the use of turmeric for color screens for orthochromatic plates, "Mr. Bell thought turmeric was adapted to the work with orthochromatic plates, and was as good as anything." He desired to say that he distinctly stated that turmeric could not be relied upon unless freshly prepared.

Referring to orthochromatic photography he showed a screen of brilliant yellow, prepared by Mr. Ives, and loaned by him. It was put behind the lens, holding back blue rays and allowing the yellow to act more strongly on the plate. It was necessary to have a plate specially prepared, as the ordinary plates would not answer. It should be an orthochromatic plate. He showed two glasses in illustration of his remarks, saying that turmeric would not answer.

Continuing, Mr. Bell showed the same color screens he had obtained in London last year. One was of pot metal, ground and polished like plate glass, and which he said would never fade. He had three tints, but finding one was too light he had cemented two together with balsam of fir.

Mr. Redfield showed a screen similar to that of Mr. Bell's, made by Mr. Ives. He also showed the front board of his camera, and the slide in which the screen was placed. It was a double glass prepared by Mr. Ives. Another method was a circular piece of glass prepared by Mr. Carbutt, which was dropped in the front of the lens, and a strip of blackened leather slipped in front of it, acting as a spring, and keeping the glass in position. Probably an improvement would be the introduction of some springs bracing the plate squarely against the back of the lens so as to prevent its being at an angle, and thus producing distortion. A still better way would be to coat the surface of the lens with some coloring matter, or have the lens made of some colored glass, as suggested recently in one of the English journals.

Mr. Cheyney said he had found it utterly impossible to get a sharp image, focusing first and putting the screen in afterwards. If focussing was done without the screen, and then the screen put in, the focus would be altered and thrown back as far behind as the thickness of the screen.

Going to the blackboard, Mr. Cheyney illustrated his remarks by diagram.

Mr. Supplee asked what would take place if placed in front of the lens.

Mr. Cheyney said the change would be very slight.

Mr. Carbutt suggested the preparation of thin films of colored collodion attached to diaphragms of black cardboard, and used in place of the usual diaphragms.

Mr. Redfield thought two pieces of thin black rubber could be used.

Mr. Carbutt said he had suggested cardboard because it could be obtained so easily.

Mr. Bell said he had already gone over that process, and found the collodion film was too brittle and curled all up.

Mr. Carbutt said it was not properly prepared then. It had a natural tendency to curl, but not to such an extent as to preclude its use. If 5 per cent. of castor oil were put in it would remain firm.

Continuing the subject of orthochromatic photography Mr. Carbutt showed some prints illustrating the excellent keeping of the plates, and also a photogravure print made by a publishing house in Boston from a negative on one of his orthochromatic plates. The print was from an old painting, and had a remarkable brilliant quality with correct color tone.

Mr. Tatham asked if any one used Vogel's eoside of silver plates. He had tried them, and found them very slow, about as slow as a Carbutt A.

Mr. Stirling reported from the Executive Committee that the catalogue of the library had been completed, and copies could be obtained. The work had been a very laborious one, and the credit for the very careful catalogue was due to Dr. Ellerslie Wallace. The library belonging to the Society was exceedingly valuable, and there was probably no collection of photographic books in America that was as complete as that of the Society. Mr. Stirling placed a copy of the catalogue on the President's desk.

Adjourned.

ROBERT S. REDFIELD, *Secretary.*

EXPERIENCES.

IN giving my experiences, I will give those pertaining to the selection and use of apparatus, outfit, and the fitting up of workrooms for the various processes used by amateurs and professionals. I have yet to see my ideal camera ; while not having used all of the many makes, I have handled most of them, and had for my personal use many kinds, and find none perfect. To a professional who is called on to make all kinds of work, and cannot choose his subject, I think the average camera lacks many things. The backs do not have sufficient swing, some of them moving less than half an inch, when two to three inches are sometimes required. Again, the fronts do not have enough slide—do not move high enough. Those that carry a cone bellows (made very small to be light) with them, while having movement enough, allow the bellows to cut off as much as one and one-half inches on the top of the plate. Compact cameras with cone bellows made with the front to drop down as a platform bed, when used with a very short focus wide-angle lens, cut off as much as one to two inches of the foreground. This, of course, is obviated when the back can be moved forward, as on the Hare boxes, and in this way avoid cutting off foreground. One camera I used was compact and quite light, but I could not slide up the front and swing the back at the same time, thus losing many important subjects, such as spires of churches, high towers, ten-story buildings, etc. Either the bellows must be made square to the front board with narrow plates, or if a cone bellows, not be very small at the front, to avoid covering the plate when the lens is raised. I have used two cameras, one 11x14, and one 18x22, made exactly for such work, with complete success. They were not of the very light pattern, but well and substantially built, with a swing back (vertical) that will move two and one-half inches from the center, and a front that will slide up nearly four inches on the 11x14, and six inches on the 18x22, and can, with these cameras, bring the lens opposite the top of the plate in extreme cases, without losing any of my subject. They have back focus, and in the 18x22 I can slip off, by bayonet joint, twelve inches of the bed, thus allowing room to get into crowded quarters, and also see to focus with a wide-angle lens. Experience has taught me that it pays to carry a little more weight and get stability. The above cameras are Scoville make, and supplied with daisy holders. The English cameras that have the best reputation are not light, but compact and heavy. In many cases the bellows is square (not cone) to the front, and made in small pleats, but the main objection is, there are too many screws and bolts to adjust before it can be set up ready for action. For small sizes, such as 6x8, and 8x10, I prefer featherweight holders, but do not think any compare with the daisy holders for large sizes. A solid tripod cannot be made very light, and to him who wants a sure foundation, by all means get one with single pivots, without joints, or at least with only one joint, for small sizes, and, for large cameras, a board for the top, with the joint pieces riveted fast, as screws will give way.

In going abroad on long journeys, never go with less than three lenses for each size camera,—the more the better, as you will be enabled to do any reasonable thing, when you need to. One rectilinear and two wide-angle. Don't buy a lens because it is cheap, as a good lens cannot be made cheap. The same applies to a shutter. Get the best, and take care of it, and it will last as long as you want it to. In going on long sea voyages, avoid those shutters that have exposed parts of steel on them, that will rust and become useless by easily breaking; at the same time keep an extra bulb and rubber hose to replace one that has become hard and worn by use.

In fitting up workrooms and photographic studios, I have noticed that in most cases all the best work is put on the reception, show-room, and office, and perhaps the sky-light room, and all other rooms fitted up cheaply,—poor plumbing and cheap carpentering work. This is a great mistake, as an operater must have the conveniences to do good work, and do it quickly. The same applies to the printing and mounting rooms.

WM. H. RAU.

AMATEUR EXPERIENCES.

IT may be all right for the editor of a photographic magazine to sit in his sanctum, lean back in his easy chair; and advise the amateur photographer to take his camera and photograph the various old buildings, churches, and historic landmarks in his immediate vicinity. This is advice easily given, but let the aforesaid advisor turn himself into a camera carrier for a week, and when he returns to his luxurious sanctum,—if our experience is worth anything,—he will be a sadder but much wiser man. A few examples of our personal experience will suffice to prove our assertion.

The locality in which we reside, the south-eastern part of Pennsylvania, besides its bits of exquisite scenery, abounds in revolutionary and colonial landmarks; and from the accessibility of many of these historical subjects, the field is more or less overrun with camera carriers and Kodak snapshots, male and female. Many of these visitors, by the total disregard of personal and private rights, have biased the resident community against the whole guild of amateur photographers, and as a result accéss to some of the most historic buildings in the district is now peremptorily refused to all applicants. In consequence of these short-comings of a few ill-bred persons, the respectable, conscientious photographic student often has a hard road to travel, being made to answer for the sins of his rude predecessors, who disgraced the photographic guild which they professed to represent. Independent of such cases, of which we will have more to say at some future time, the rebuffs met with, even under ordinary circumstances, where some ignorant rustic objects and will not listen to reason, are often disheartening in the extreme, entailing not alone a loss of time and money, but of temper as well.

On one occasion the writer projected a trip up the old Swedeford road in the Chester Valley, for the purpose of making a series of negatives of an old building, which in years gone by had been a roadside inn and "lodge stand,"—*i.e.*, a place where a Masonic Lodge had met in revolutionary time. The day was hot, the drive long and dusty, and more than all the reputation of the occupant crusty. It was the intention to make negatives of the exterior and interior, especially of the old bar-room and the large room on the second floor, wherein the old lodge had once met, and which has not been altered during the present century. As an extra precaution to assure success, the aid of a neighboring clergyman well-known to the resident was enlisted. Arriving at the house, the man, who proved to be a raw-boned Scotch-Irishman with a backbone, refused to listen to our appeal, nor would he even permit us to see the lower room, much less the old "Masonic room" on the upper floor. Our friend the clergyman used his best endeavors in our behalf,—we explained to him that we were a member of the Leopardville Camera Club,—that we would make pictures of his house and send him some without charge, all without effect; at last, after all patience was exhausted, we ventured the question, whether he would object to a picture being taken of the exterior, if we set the tripod up in the middle of the road. His reply was, "If ye'es dare to set up yer thing out there ferninst the house and pints it over here, I'll hiss the dag on ye'es, and if the dag doesent tare the hide aff of ye'es, I'll kill the dog," at the same time calling to his boy "to tie the dag loose." As the canine was of an exceedingly lively and willing disposition, of the cross-breed bull variety, we quickly gathered up our tripod, camera and clergyman, jumped in our buggy, and drove sadly on. A day lost,—a desire unaccomplished.

On another occasion, an old Quaker meeting-house was the objective point; this too necessitated an eight mile drive. On our arrival we found the meeting-house closed. After looking up the sexton, his wife offered to open the door, and admit us into the old sanctuary, provided we gave her half a dollar in advance. This was agreed to; her palm was crossed with the silver, success seemed assured, the light was good, not a leaf stirring. The woman, as soon as the money was given her, returned to the house, as she stated, for the keys. We waited several minutes for her return; we commenced to get anxious. However, at last she reappeared with the keys in one hand, while on her other arm she carried a strapping big ten-months-old baby. "Johnny" his name was, as we found out, and thereby hangs the tale. It was but a short distance to the meeting-house, the door was opened, the window-shutters hooked back, the camera duly set up and leveled, the focus taken, and all was ready. But there stood the woman with Johnny in her arms. We asked her to step aside as we were ready; to our surprise, nothing would induce her to move. "If the meetin' was agoin' to be took, she and Johnny was agoin' to be took with it, or it would'nt be took at all." We tried to argue with her if she would step aside; we offered to make a nice picture of "she and Johnny" by themselves, but all the satisfaction we got from her was that "she had been there before," and had been "fooled too often by you fotegafers." Talk, argument, reasoning, all were in vain. "She didn't care how long she stood there, Johnny had had his dinner," and it was "she and Johnny" or nothing. Thus almost an hour was spent; "she and Johnny" were determined. As the negative was wanted for a lantern slide, it would have been worse than useless with "she and Johnny." So all that was to be done was to limber up, jump into the wagon, and retreat. Time, horse hire, a half a dollar, and a picture out.

Still this was not our worst experience. On a hot summer day in August last, we were trudging along an old neglected highway in the western part of our (Chester) county, with a heavily loaded camera case in one hand and a solid tripod under the other arm,—hot, parched, and dusty,—our purpose being to photograph the different houses along the old thoroughfare, which in former days had been as full of life and activity, as it was now a picture of desolation and gloom. One of these old houses by the wayside had once been a prominent landmark and a famous hostelrie, and had quite a colonial and revolutionary history. We were more anxious to get this subject than any other within the five miles which we traversed on this hot and dusty journey. As we arrived at the house we found it necessary to set the tripod up within the enclosure, as the trees in front cut off a good view of the house. So opening the gate, we started for the back of the house, knowing that the occupants, as in most country houses, were sure to be in the kitchen. Well, we had not traversed half the distance before a tall, angular woman emerged, and opened the ball with "Mister, what do you want?" We told her in our blandest manner that we would like permission to make a picture of the house from the yard, as the house enclosure is usually called in our county. Suiting our actions to our word, we commenced setting up our camera, but had not finished when she interrupted, breaking out in a high falsetto key, "Well, just as I thought, and what I told Daniel, as you would have cheek to come back here again, but I got you now," and before we could get over our surprise, the virago had seized the luckless photographer by the arm, knocking over the camera regardless of damage, yelling out, " Daniel, Daniel, come quickly ; I got him, the cheat, the villain." Well Daniel came, a tall, muscular, raw-boned six-footer, with clinched fists and business in his eye. We tried to get loose. We were at a loss to know what it all meant,—we asked them to explain,—we protested that there was a mistake somewhere; in fact, it commenced to dawn upon us that we must have struck some private mad-house. However, at last, Daniel told us to "get," and as soon as Mrs. Daniel released her hold, and we could pick up our demoralized outfit, we got. The place had no further charm for us. Even after we were on the road we lingered not in front of the house ; we went on until we came to the next house, where we entered, with much hesitation, to crave a drink of water. Fortunately the resident here, a country physician, a gentleman of the old school, greeted us so cordially that we had confidence in human nature, and related our experience to him, and asked him for a solution of the mystery. After a hearty laugh, the doctor told us that some months ago a couple of sharpers had gone through that section, making believe to photograph the various houses, barns, horses, cattle, dogs, etc., in every case exacting payment in advance, promising to send finished pictures, which it is useless to say was never kept. His neighbors were among the victims, and so when we came along on our legitimate errand Mrs. Daniel and Daniel took us for one of the same kind.

As a picture of the house in question was of much importance to us, the kind-hearted physician offered to return with us to the place of our discomfiture. He explained to the worthy couple that we were a member of the Leopardville Camera Club, and took the pictures for amusement and not profit, or as a means to swindle innocent persons. However, Daniel and his wife were obdurate. She argued that we had just the same kind of a box on three legs, and stuck our head under a black apron just like the sharpers, and if we were not of the some crowd, why our machine was. Nothing would convince the simple-minded couple ; so we had to content ourselves with a snapshot from the roadside.

Now, Mr. Editor, these are but a few of the experiences of an amateur photographer with historic proclivities. In my time I have been chased by a bull, numberless dogs, and irate agriculturists, have had rebuffs innumerable, beside being on different occasions taken for a bunco man, spectacle peddler, sharper, crank, loon, and goodness only knows what not. As I said before, take your silver-plate rosewood camera and battery of gold-mounted lenses, go out and try it. After that you will be able to speak from experience. Trudging over dusty country roads on a hot summer day, lugging your outfit, is not quite as pleasant (no matter how enthusiastic you may be) as sitting on a cool rattan rocker in your sanctum, sipping an iced cobbler, and writing editorials, in which you advise amateurs what to do, where to go, and what to take.

J. FOCUS SNAPPSCHOTTE.

TONING AND FIXING.

THE following interesting communication appeared in the current number of the Beacon. It is from the pen of Mr. Joseph Wormald, and although the process is an old one, and with slight variations well known to many amateur photographers, it is yet well worthy of the attention and perusal of all readers of the AMERICAN JOURNAL OF PHOTOGRAPHY. The writer has seen some excellent results obtained by a similar process. As to the permanency, however, of the prints we would not like to venture an opinion, as a sufficient length of time has not elapsed to allow a correct judgment. But even granting that these results should not be quite so permanent as the ordinary albumen prints, fixed and toned separately, the process is so simplified that any amateur, whether lady or gentleman, can print their own pictures and obtain such pleasing results, without the experience and judgment made necessary by the process in common use, which often requires years of practice.

In the subjoined article there seems to be one omission,—viz , the length of time required for the final washing. From the experiments which came under the personal notice of the writer, we would suggest that the prints be left under the tap not less than three hours after they are taken out of the toning and fixing solution. As a matter of course the fixing must be done in a diffused light.

The article in question states : " Printing, or rather toning, to my own satisfaction used to be such a difficult, or rather impossible, operation that for two or three years I sent my negatives, or at least the few that were worth it, to a professional printer. Of course, when my friends admired my pictures, especially the fine tones, I felt mean if I did not say where they were printed, and, if I did, was disgusted with the ' Oh, that accounts for it ' expression immediately assumed. But all this is now ended, and I can show with confidence as brilliant prints and beautiful tones obtained with ease and certainty, and in such quantities, from one to any number, as may be required, as ever I got from the professional printer.

" As I believe many of the readers of the Beacon suffer as I did, I wish to tell them how I got out of my difficulty, in the hope that they may attain to a like success. No doubt some one will say, " You began to make better negatives," and no doubt that is to a certain extent true, as there is nothing that will so help one on the road to good negative making as being his own printer ; but that in reality is only a small element in the cause of the improvement. Six or eight months ago I saw a formula for what was said to be an old fixing and toning bath capable of giving fine tones, and that had been abandoned under a mistaken belief that the prints produced by it were not permanent. It looked so promising, and I had such confidence in your opinion, and was so anxious to do my own printing, that I decided to give it a fair trial, and, by following the directions implicitly, succeeded to my entire satisfaction. Since then I have somewhat varied the proportions, and now proceed exactly as follows :

TONING AND FIXING BATH.

Solution of chloride of gold (one grain to the dram),	½ ounce.
Nitrate of silver,	30 grains.
Hyposulphite of soda,	4 ounces.
Water,	20 ounces.

"Dissolve the hyposulphite in ten ounces of the water, the gold in five, and the silver in the remaining five ounces. Then pour the solution of gold gradually, with constant stirring, into the hyposulphite, and afterwards add the silver in the same way. This order of mixing must be strictly adhered to, and the bath so made allowed to stand for two or three days before using. It will keep indefinitely, and may be used over and over until the gold is exhausted. Practically, I don't think I continue to employ it so long, but keep tally on the quantity of paper toned, and when five sheets have passed through the above quantity it is thrown away and a fresh bath made up. When the bath has been made for some time, and especially after a number of prints have been toned in it, there is generally a considerable quantity of black deposit found at the bottom of the bottle. This seems to be sulphur, but does no harm, as enough of the clear liquid can be decanted into a tray to cover any number that I wish to tone.

"The methed of operation is very simple. The prints, decidedly darker than they are expected to be when finished, are placed at once into the toning bath without washing, and kept moving till the desired color is acquired. First the purple silver chloride seems to be dissolved, and the prints assume a brick-dusty appearance, which gradually becomes less and less red, then more and more brown, then a purple brown, and finally a deep purple brown, which is just what I want. There need be no doubt or hesitation as to how far to carry the process, as the prints only requiring to be washed on removal from the bath, no subsequent change takes place, unless, perhaps, that the purple becomes very slightly deeper on drying.

"I am very well pleased with my results, and heartily recommend the method to my brethren of the camera."

A NOTE FROM "METRE."

PHILADELPHIA, Feb. 27, 1890.

MR. EDITOR:—Dr. Wallace, in his article on "Weights and Measures," *vide* February number of your journal, has fallen into a singular error, one hardly to be expected from him, in regard to the terms used in the metrical system. He says: "The division or multiplication by 10 is perhaps easier, save for the troublesome Greek prefixes, which have to be remembered in connection with quantities greater or less than the standard." A moment's reflection would have shown him that the terms for multiplying are *Greek*, and those for dividing *Latin*, this distinction very materially aiding the memory. Thus the word

Deca	prefixed means,	10	times.
Hecto	" "	100	"
Kilo	" "	1000	"
Myria	" "	10,000	"

On the contrary, for divisors, the word

Deci	expresses,	10th	part.
Centi	"	100th	"
Milli	"	1000th	"

Thus

One Deca-gramme means, ... 10 grammes.
One Deci-gramme " . . . . a 10th part of a gramme.

The metrical system as conceived by its authors is so perfect in all its details that it must ultimately come into general use among all civilized nations. Even English conservatism must sooner or later give way to the inevitable. In the hurry of writing we can well imagine that Dr. Wallace omitted the word " Latin."

METRE.

This word can now be inserted before or after the word " Greek " in the article. We invite correspondence on this subject. " ED."

WE welcome into the brotherhood another Photographic Society, the Frankford Camera Club, which has started out with a goodly membership of ladies and gentlemen. We particularly commend the admittance of ladies, and hope the example in this respect will be followed by some of our older societies. The officers for the year are Mr. Geo. M. Taylor, President; John Justice, Secretary and Treasurer.

MEET OF THE CAMERA CLUB.

Between seventy-five and eighty people attended the meeting of the Frankford Camera Club, at Wright's Institute, on Tuesday evening, and listened to instructive and interesting discourses. Mr. Charles Kain, assistant superintendent of the Public Schools, gave an interesting talk on the adaptability of the camera as an aid in teaching. His remarks were practically illustrated by works which he had made, and which are now in use in the public schools. Dr. Ekwurzel and Mr. John Justice also gave an interesting talk on blue prints and how to make them, giving formulæ for the working of same. During the evening it was suggested by one of the members that all the places of interest around our own town and immediate neighborhood be photographed by the club's members and kept in albums, the property of the members, so that at some future time they may be looked upon not only as curiosities but with interest.

The residents of Frankford should think this work worthy of consideration and support, and should send in their names to the secretary, Mr. John Justice, Orthodox Street, with a view to become members. Five ladies' names were handed in on Tuesday, and we trust more will come forward by April 1st, on which day the annual meeting is held. The announcement of the April meeting and lecture will be published in a further issue of this paper.

OUR ever welcome exchange, the *Photographisches Wochenblatt*, so ably edited by Dr. A. Miethe of Berlin, it seems has received several communications or inquiries in regard to our article in the January JOURNAL, in reference to a new danger which threatened the American dry plate industry, and in which the *Wochenblatt* is quoted. Dr. Miethe thus disposes of the subject in his reply to an " Anxious

Inquirer:" "Herrn P 117.—We have the article also now read, and ourselves much amused; you wonder yourself even so as we, that the smart Yankee our notice and warning against the 'Crotonwanze' for real earnest have taken. The dressing up of the jest is, however, very pretty. Our notice originated, however, as a matter of fact, in one American periodical, where it on an important place to find is."

We thank our brother photoscribe for his kind words and appreciation of the joke, and trust that our effort has not given offence to any one in the far off Fatherland.

"A little joke now and then, is relished by the best of men," even if it is at the expense of the despised cimex lectularius.

In the same article Dr. Miethe goes on to state, joking aside, that it is unfortunately an established fact, that certain organisms exist which have a peculiar predilection for the gelatine dry plate—especially when in a damp or moist atmosphere. An interesting instance is thus quoted from his personal experience, during the past summer:

"On some of his own specially prepared, and otherwise perfect, dry plates peculiar transparent spots appeared suddenly; an inspection under the microscope showed a branching algæic organism which seemed to radiate from the center of the spots. The dry chest in which the plates were kept was at once subjected to the fumes of bi-chloride of mercury and carbolic acid; after a thorough fumigation all the spots disappeared from the plates, without leaving a trace."

It would be of great interest to know the result of an exposure and development of these plates, on which the spots had first appeared and then vanished after being subjected to the disinfecting fumes. Will Dr. Miethe kindly supply this information in the *Wochenblatt*, or otherwise? J. F. S.

A chance for Amateur Photographers.

TO encourage the art of photography, and especially to encourage amateurs in the art, FRANK LESLIE'S ILLUSTRATED WEEKLY hereby offers a prize of a $200 photographic camera of the finest make to the amateur photographer who shall, within the next three months, send us the most perfect and artistic specimen of his or her work. It is our purpose to devote a page of this periodical weekly to the reproduction of the choicest pictures that are sent in for this competition, and at the close of the competitive period we shall produce photographs of the chief contestants. It is our desire therefore, that contestants forward to us, with their work, cabinet pictures of themselves. In sending entries for this contest, the date when the pictures were taken, descriptions of the subjects, and any other facts of interest regarding them, should be given. We would also like the age of the photographer and the experience he or she has had in the art. The prize-winner will be selected by a committee consisting of Mr. Pach, the eminent photographer of this city, and Mr. Joseph Becker, the head of the art department of FRANK LESLIE'S ILLUSTRATED NEWSPAPER. The first prize offered will, if the competition is sufficiently animated, be followed by others. The contest will be limited exclusively to amateurs. Professionals are barred.

Address all communications to

ARKELL & HARRISON,
"Photograph Contest,"
JUDGE Building, New York.

LITERARY AND BUSINESS NOTES.

So great a power has the camera carrier become in the land, that even the hotels in picturesque parts of Europe recognize the fact, and are now using the dark room and accessories as a medium to attract patronage. Below we give a list of hotels in Switzerland which advertize that they are supplied with an "Installation Photographique, a la disposition des amateurs":

Hotel Beau-Rivage, Director M. J. Maurer, *Interlaken*, cant. de Berne. Hotel d'Angleterre, Director M. C. Demmer, *Davos-Platz*, cant. des Grisons. Grand Hotel des Bains, Director M. C. Hiele, *Bex*, cant. de Vaud. Hotel du Chamossaire, Director M. H. Amiguet, *Chésières, s'Ollon*, cant. de Vaud. Hotel des Alpes et Grand Hotel, Director M. Ami Chessex, *Territet*, cant. de Vaud. Grand Hotel de Vevey, Director M. E. Michel, *Vevey*, cant. de Vaud. Grand Hotel du Lac, Director J. Tappert, *Vevey*, cant de Vaud. Pension du Panorama, Director M. N. Blotnitzki, *Vevey*, cant. de Vaud. Hotel du Grand-Muveran, Director M. A. Petter Genillard, *Villars s'Ollon*, cant. de Vaud. Hotel du Château de Laufen, Director M. C. Wolter-Witzig, cant. de Zurich. Hotel Freienhof, Director M. G.-R. Engemann, *Thoune*, cant. de Berne.

THE *Photographic Review* (Feb. 8) re-publishes our paper on "A New Danger to American Industry," with an editorial comment, in which it states that one of their staff, who is something of an entomologist, suggests that the pest may be the "Posse Amerikanesche."

THE *Revue Suisse de Photographic* for the current month contains a valuable contribution from the pen of Dr. A. von Wurstenberger of Zurich, on the uses of "Photography in Railroad and Road Construction." In his paper he gives the valuable results achieved with the aid of the camera in locating the "Säntis bahn" from Alpenzell to Wagenlucke, at an elevation of from 789 m. to 1904 m. respectively above the ocean line. A lack of space alone prevents us from giving the paper in full to the readers of the AMERICAN JOURNAL.

THE illustrations of the February *Revue*.—four process cuts, printed in the text,—hardly do justice to the negatives, which are by M. F. Zoissonnes of Geneva, who certainly deserves great credit for his selection of subjects and the execution.

WE would call the attention of our readers to the advertisement of the publishers of "*Frank Leslie's Illustrated Weekly*," which appears in the present number of the JOURNAL, with the request to give the matter their consideration. It is a competitive contest, which is limited exclusively to amateurs, the prize being a $200 camera and outfit. The enterprise marks a new departure in journalism, and we trust may prove a stimulant to better work and artistic effects. In the interests of photography we wish the promoters success, with the expressed wish that the prize may come to Philadelphia.—EDS.

THE *Art Journal* (Virtue & Co., London) acknowledges the importance of photography, and makes it a special feature in the volume for the current year. In the "Programme for 1889" it states that the value of photography for the purpose of art and illustrations will be dwelt on in more than one fully illustrated article, under the titles of Winter Studies, Photography under Difficulties, The High Alps, Mountain Studies, Plant Studies, etc. For these photographs have been lent by the principal photographers of the day. The articles will be by Capt. Abney, F. R. S., and H. P. Robinson.

The first of the series by H. P. Robinson, "Winter Photography for the Artist," is illustrated by fine reproductions, selections from the late exhibition of the Photographic Society. The "Study of Hoar Frost in the Grindlewald," by Captain Abney; The "Sandringham," by Mr. Bedford Lemere; and "A Frost Study," by Mr. Hopps, are all excellent. The beautiful little picture, "Homewards," by Mr. J. Gale, proves that, in capable hands, photographs showing much poetic feeling, and at no expense of definition, may be made in the low light of a winter afternoon. The remaining subject, "A Quiet Stream," by Mr. Ernest Spencir, is a winter scene, showing a placid rivulet, spanned by an old picturesque bridge, fully in keeping with the superscription.

LE AMATEUR PHOTOGRAPHIE (Paris) announces a prize competition for negatives of all kinds, the cut sizes of the plates being 9x12, and 18x24. It also contains the programme of a series of lessons on "Photography and its Application to Various Industries," to be given by M. Ch. Gravier, which will include lessons on the various reproducing processes, enlargement, reduction, and coloring, and upon which notes will be given in the paper.

We have noticed a peculiarity about the above publication; the current numbers invariably state that an illustration accompanies that issue, while in the copy received by us we have been unable to find it—in fact it is always missing. We have been at a loss to know whether the omission is accidental, the result of carelessness, or perhaps done as a matter of economy.

DR. VOGEL, in an article in the *Bulletin de l'Association Belge de Photographie* on the jubilee of photography, points out the influence which photography has had upon the art critic. He contends, and with perfect justice, that photography has given to the public a more profound knowledge of nature, which enables it not only to appreciate, but to judge of the work of painters much more accurately than was possible years ago. Painters, on the other hand, have been compelled to work according to the light which photography has thrown upon the conventionalities of art now shown to be errors. As for the power of reproduction, photography has worked quite a revolution, and added materially to the earnings of the artist. Dr. Vogel gives an example of a painter who sold his picture for 1,500 marks, the reproduction of which brought in at least ten times as much.

BE WEATHER WISE.

Says a weather observer: "When you wish to know what the weather is going to be, go out and select the smallest cloud you can see. Keep your eye on it, and if it decreases and disappears, it shows a state of air that is sure to be followed by fine weather; but if it increases, be prepared to protect your dry plates and apparatus, for failing weather is not far off." The reason of this is: When the air is becoming charged with electricity, you will see every cloud attracting all lesser ones towards it until it gathers into a shower; and, on the contrary, when the fluid is passing off, or diffusing itself, then a large cloud will be seen breaking into pieces and dissolving.

DURING the last month, much attention has been attracted to the theatrical advertisement displayed in the various show windows, which in itself is a triumph of modern photography. "Faust Up to Date," as the tableau is called, was photographed by Rothengatter & Dillon, with the aid of "McCollin's Blitz-Pulver," the lens Euroscope, F. 24, seed plate. The difficulty of the work will be better understood when it is known that the stage is forty-five feet wide and thirty deep, and contained over sixty people. We congratulate the artists on their success.

UNDER present circumstances it would be as well for tourists contemplating a summer trip through Russia and Siberia to leave their Kodaks and cameras at home If the report is true, an imperial ukase has been issued against any one taking exposed plates or films out of the empire. This action is said to have been caused by illustrated magazine articles derogatory to Russian institutions, which have been published in this and other countries.

MARCH BARGAIN LIST.

Colored Lantern Slides, mostly foreign, $1.00 each.

80—Lantern Slides of California, Yosemite Valley, big trees, etc., 20 cents each.

Accessories:

1—7x10 Glass Bath	$1 00
1—Universal Finder	1 25
1—Wood Drop Shutter	1 25
1—Calcium Light Scioptican	25 00
1—15-in. Oscillating Burnisher,	10 00
1— 6-in. Eureka Burnisher,	8 00
1—Bromide Easel, with Kits up to 25x30	10 00
1—Walmsley Reversible Finder	2 50
1—Packard Rock	3 00
1—8x11 Exterior Background, light right	8 00
1—Card size Burnisher	3 00
1—Cameo Press	1 00
1—Rustic Wood Chair	4 00
1 copy Photo Mosaics for 1881, in cloth	50
1 copy Photo Colorists' Guide,	75
1 copy About Photography and Photographers	50
British Journal Almanacs for 1889, reduced to	30
1—Fuming Box	4 00
1—15x18 Japan Tray	50
1—Seavey Swiss Cottage Accessory	12 00
1—8x10 Exterior Ground, good condition,	10 00
British Journal Almanacs for 1878,	20
Photo Mosaics for 1883,	20
1—8x10 Osborne's interior background, new, light left	20 00
1—4x8 Osborne's side slip	7 50
Pearl leads, the best retouching point in the market, each	15
5x8 Woodbury Dry Plates, PER DOZ.	80
5x8 Neidhardt "	65
4x5 Bridle "	35
1—Hough's Oak Stump	7 50
1—Osborne's Bridge Accessory	8 00
1—Osborne's Gate Combination Accessory, new	18 00
1—6x6 Children's Fancy Ground	3 00
1—15 inch Smith & Pattison, Quadruplex Enameler,	25 00

Camera Boxes:

1—8x14 Flammang revolving back camera, double swing	35 00
1—Kodak camera, with film for 60 pictures	19 00
1—3¼x4¼ English instantagraph, camera, lens, shutter and tripod	12 00
1—8x10 N. P. A. Camera, single swing	12 00
2—8x10 Novel Holders, each	2 50
1—4x5 Flammang revolving back Camera, lens and tripod, new; reduced from $37 to	25 00
1—17x20 American Optical Co.'s Double Swing Portrait Camera, Bonanza Holder, good as new	75 00
1—5x8 Blair View Camera, single swing	17 00
1—Climax Outfit, including chemicals, complete	3 50
1—5x8 Tourist Outfit, including 5x8 Tourist Camera Box, 2 Daisy Plate Holders, 1 Extension Tripod, and 1 Canvas Carrying Case, very little used. Price, new, $40.50, will sell for	30 00
1—10x12 Cone View Camera, Double Swing, new	52 80
1—5x8 Wet Plate Stereo Camera, 3 holders, case and tripod	25 00
1—6½x8½ View Camera and Lens,	12 00
1—6½x8½ American Optical Co. first qual. View Camera	23 00
1—4¼x5½ Ex. qual. Portrait Camera	17 50
1—5x8 American Optical Co. Stereo Camera	25 00
1—5x8 Blair Compact Camera, good as new	35 00
4—5x8 Feather Weight Holders, each	75
1—5x8 '76 View Camera, with lens, holder, case and tripod	15 00
1—4x5 Anthony's View Camera, with lens, tripod, carrying case and six double holders in good condition	16 00
1—43 B. Climax Portrait Camera 8x10 with Benster Holder,	20 00

Lenses:

1—No. 1 4x5 Darlot rapid hemispherical lens	12 00
1—21x25 Dallmeyer rapid rectilinear lens	210 00
1—¼-size Voigtlander lens	5 00
1—pair E. A. Stereo Lenses	6 00

1—H. Fitz 8x10 wide angle Lens, with revolving stops	5 00
1—¼ size Harrison Lens	5 00
1—4x5 Rectilinear Lens	5 00
1—5x8 Morrison Wide Angle Lens	18 00
1—4-4 Harrison Portrait Lens	18 00
1—6½x8½ View Lens	3 50
1 set ⅛ Tubes	18 00
1—Matched pair E. A. Stereoscopic Lenses	8 00
1—14 x 17 Voigtlander Portrait Lens	60 00
1—No. 9, 11x14, Ross Portable Symmetrical Lens	60 00
1—11x14 Harrison Double View Lens	15 00
1—4x5 J. A. K. Single View Lens	2 00
1—Extra 4-4 Roettger Portrait Lens	15 00
1—2A Dallmeyer Lens	82 00
1—set ¼ Darlot Tubes	12 00
1—4-4 Holmes, Booth & Hayden Portrait Lens	25 00
1—½ size Voigtlander Lens	25 00
1—⅓ size L. W. Krantz Portrait Lens	12 50
1—⅓ size C. C. Harrison Portrait Lens	8 00
1—½ size Darlot quick acting Portrait Lens, central stops	18 00
1—8x10 Voigtlander Portrait Lens	80 50
1—4-4 Dallmeyer Group Lens	50 00
1—4-4 Walzl Portrait Lens	20 00
1—No. 2 Darlot Rapid Hemispherical Lens,	20 00

WANTED.—A good steady operator, no bad habits, can have a permanent situation. Address

REED & WALLACE, Selma, Ala.

A FIRST-CLASS retoucher wishes a situation where he can learn operating. Address,

S. J. F., 252 Essex St., Salem, Mass.

WANTED—Situation as operator and retoucher; will also assist at printing. Address, Box 754, Palmyra, N. Y.

AN Operator who is original, as well as a fine lighter and poser, will be open for position October 1st.

OPERATOR,
252 Essex St., Salem, Mass.

FOR SALE.—Appel's Bargain: $900.00 worth for $500.00. Complete outfit for a Photograph Gallery, all accessories etc., good as new. This is a bargain for a beginner. Only those having the cash need apply for further information to

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A STRICTLY—First-Class Neg. Retoucher wishes a position in a First-Class Studio of a SOUTHERN town. Best of References. Address "Retoucher,"

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WANTED.—A man who can operate, print, tone and retouch. Must be a first-class retoucher and printer. Send samples.

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FOR SALE.—Photographic Gallery, finely equipped, heated by steam, prices first class. Town about 8000, important R. R. centre; central part of New York. Address,

W. C. ROWLEY, Elmira, N. Y.

FOR SALE—An Engraver's Line Negative, 6½x6½, in good condition. Cost $75.00, will sell very low.

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635 Arch St., Phila.

FOR SALE.—First-class gallery, best location in place, only one flight up. Steam heat. Electric light, plenty good city water, all on one floor, lots of room. Everything new. A rare chance for a photographer that wants a first-class gallery at a low figure. Price $1600, cash. Address L. C.,

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FOR SALE CHEAP.—A 1 Photo. Gallery, in a manufacturing Pennsylvania town of 4000 population with large surrounding country. Satisfactory reasons for selling.—PHOTOGRAPHER,

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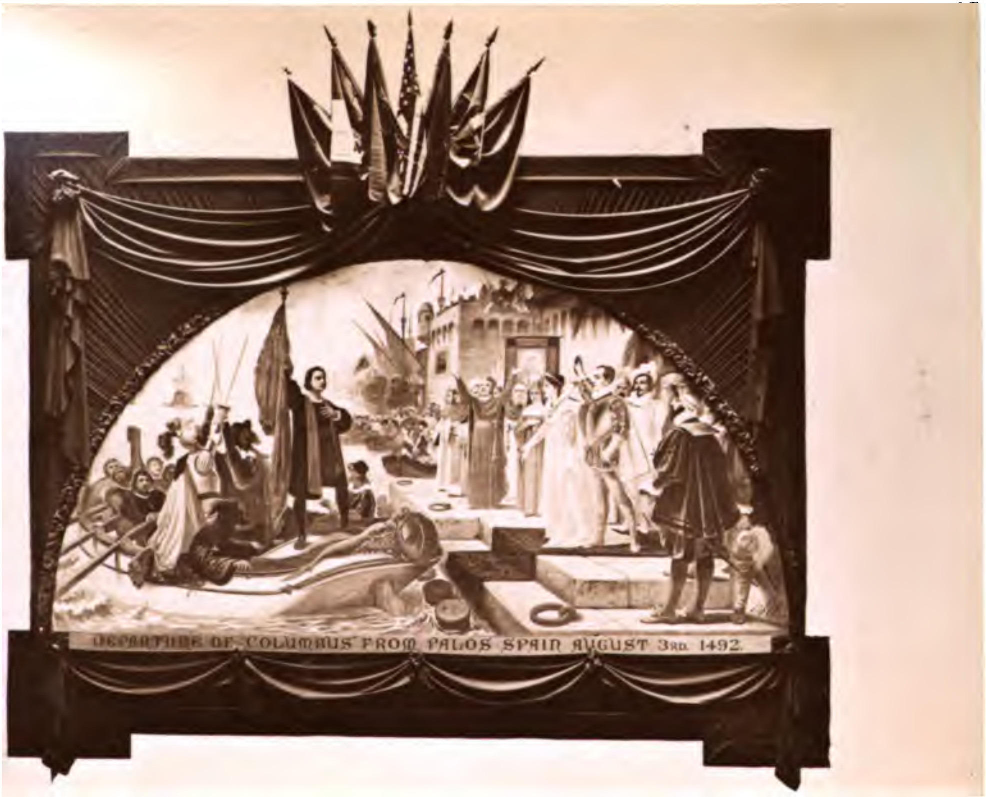
10 x 12	80	1 00	29 x 36	4 00	4 75
11 x 14	1 00	1 25	30 x 40	4 25	5 25
14 x 17	1 10	1 25	35 x 45	6 00	7 25
16 x 20	1 15	1 35	40 x 50	8 00	10 75
18 x 22	1 25	1 50	45 x 60	9 25	12 50
20 x 24	1 40	1 70	50 x 70	13 00	17 00
22 x 27	1 75	2 25	52 x 80	17 50	22 50
25 x 30	1 95	2 70			

Net cash with Order. No charge for making Negatives. 10 per cent. additional for Bromide Prints.


DEPARTURE OF COLUMBUS FROM PALOS SPAIN AUGUST 3RD. 1492.

EMBARKATION OF COLUMBUS, FROM PALOS, SPAIN, AUGUST 3, 1492.

NEGATIVE BY THOS. H McCOLLIN.

PAINTED EXPRESSLY FOR WANAMAKER & BROWN, PHILADELPHIA.

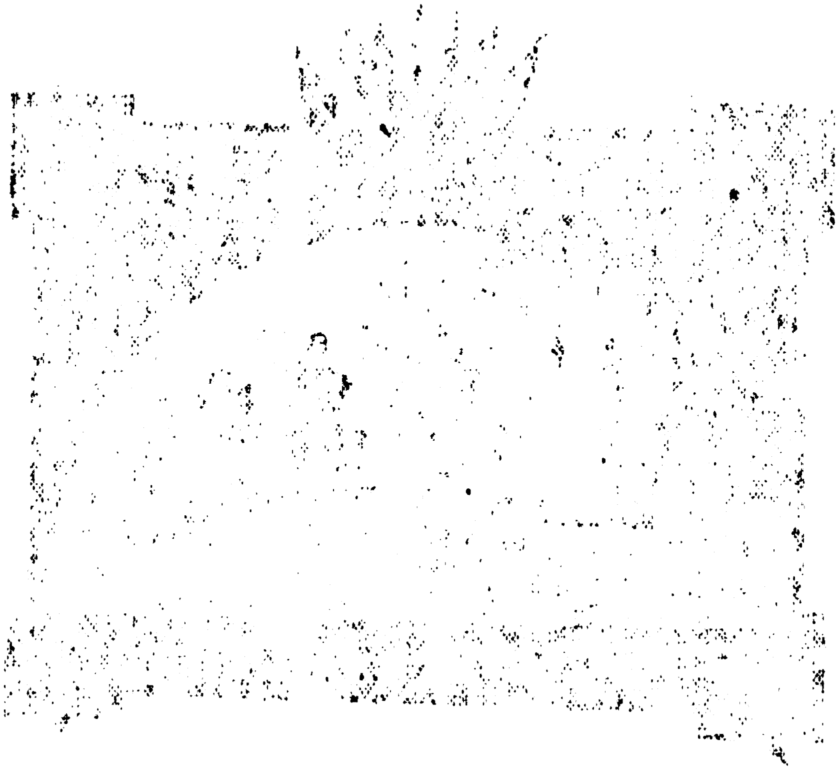
[illegible]

[illegible] made [illegible] whose [illegible] these were [illegible].

P[illegible] image as [illegible] the ground glass [illegible] the matter [illegible] say [illegible] suppose that a certain portion of the [illegible] which a faint [illegible] was thrown from some [illegible] the [illegible] vided that the image in the camera [illegible] white wall and the shaded part [illegible] the tones could not be preserved in the negative [illegible] equally true for the shadows and deeper details. [illegible] are those that would [illegible] suffer [illegible] the presence of any [illegible] camera.

This diffused light in the camera may get there either [illegible] through the lens when directed towards some very bright object [illegible] stretch of sky, or by being reflected from some part of the lens [illegible] camera. A good means of determining whether things are [illegible] would be to point the camera at some very dark object against the light, such as [illegible] evergreen trees with the principal light in the sky directly [illegible] above them. By examining the image on the ground glass closely, it could easily be determined whether any haziness in the dark shadows of the trees was caused by reflection from the dry part of the apparatus, or by [illegible] light from the sky.

The importance of having every part of the interior of the apparatus free from reflecting surfaces cannot [illegible], particularly for out-door photography of



EMBARKATION OF COLUMBUS FROM PALOS, SPAIN, AUGUST 3 1492

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AMERICAN ACADEMY
APR 24 1890
OF ARTS AND SCIENCES.

AMERICAN JOURNAL OF PHOTOGRAPHY.

Published by THOS. H. McCOLLIN & CO.

VOL. XI. PHILADELPHIA, APRIL, 1890. No. 4

THOMAS H. McCOLLIN, Managing Editor.

MECHANICAL MEANS FOR OBTAINING INCREASED BRILLIANCY OF IMAGE.

IT not unfrequently happens that, even with plates of excellent quality and chemicals of the best brands, the results obtained leave much that is wanting in point of brilliancy.

It need hardly be said that while brilliancy constitutes the chief charm of well-made photographs of almost all classes, there are certain kinds, on the other hand, whose beauty depends on the absence of anything like brilliant tone-contrast. With these we need not trouble ourselves at present.

Brilliancy of image in a photograph largely depends upon the quality of the image as it is thrown upon the ground glass by the lens; and if we come to analyze the matter, we might further say that it consists in a perfect differentiation of the numerous tones and half-tones that combine to make up the image. For example, let us suppose that a certain portion of the picture was the white wall of a house on which a faint shadow was thrown from some projecting portion of the building; provided that the image in the camera were pure, the negative would show both the white wall and the shaded part distinctly, but if diffused light were present even in small amount, the tones would not be preserved in the negative. This would be equally true for the shadows and deeper shades. Indeed the darker parts of the picture are those that would most suffer from the presence of any diffused light in the camera.

This diffused light in the camera may get there either by being transmitted directly through the lens when directed towards some very bright object, such as a large stretch of sky, or by being reflected from some part of the lens or interior of the camera. A good means of determining whether things are in order would be to point the camera at some very dark object against the light, such, for instance, as a group of evergreen trees with the principal light in the sky directly behind or above them. By examining the image on the ground glass closely, it could easily be determined whether any haziness in the dark shadows of the trees were caused by reflection from the dry part of the apparatus, or by direct light from the sky.

The importance of having every part of the interior of the apparatus free from reflecting surfaces can not be over-estimated, particularly for out-door photography of all kinds. Some of the cheaper outfits are turned out by the manufacturers in a very crude condition in this respect, the interior of the camera being rather stained than blackened, and the metal work on the inside of the lens left without the slightest attempt at removing the polished surfaces, which reflect light almost like a mirror. To get rid of these apply a mixture of spirit varnish and lampblack with a brush. If the edge of the glass in the lens is seen to reflect light where it fits against the wall of the brass cell, take it out and apply the black varnish over the ground surface of the edge, carrying it slightly up on the face of the lens, so as to make a ring of the black material and cut off reflections.

When making groups or portraits out of doors, annoying cross-lights and reflections may often be gotten rid of by the old plan of adapting a cone-shaped tube or hood, lined with black velvet, to the front of the lens. Such a tube may be twelve inches or more in length, and its front opening should be made small enough to slightly cut off the field of the lens at the four corners of the picture. A series of large diaphragms made of cardboard, with black velveteen glued on one side, could easily be arranged so as to fit the projecting hood, and thus suit different sizes and characters of pictures.

In some kinds of work a large diaphragm of this kind is absolutely indispensable. If a " cone-front " is used on the camera, there will often be reflections from its sides that no blackening, no matter how perfect, will remove. A large black diaphragm, as described, set inside the cone near its rear end, will cut off the stray light, and enable the operator to obtain brilliant results without difficulty. In slide-making with the camera, this idea will often prove very useful; the camera being of necessity directed towards a strong light. Now, we frequently see directions given for slide-making in which the importance of keeping the space between the lens and the negative darkened seems to be quite overlooked. For instance, it is often said that good slides may be made by simply setting the negative up in a window and bringing the camera to a suitable distance. Here it will be seen at once that any cross-reflections or stray light have the fullest opportunity of entering the lens and fogging the image. But if a cardboard hood, such as we have already spoken of, be adapted between the lens and the negative, the clearness of the image, both as seen on the ground glass and on the developed negative, will be very marked. Not that we recommend such an awkward makeshift as this for the practical work of slide-making, but we give the example to show how carefully all light except that which is immediately concerned in the formation of the picture must be excluded from the sensitive film.

Among the numerous parallelisms that have been drawn between the human eye and the photographic camera, the one of shielding the lens from glare and stray reflections just as the eye is sometimes by holding the hand above or around it, should not be forgotten. Sky-shades and dark hoods are very useful adjuncts to any lens, and form the analogue to the hand employed in shielding the eye. The lens, in fact, should be treated like the eye in all these respects. Due care bestowed upon this matter, and perfect freedom from reflecting surfaces about the lens-mounting and camera, will go far toward the obtaining of vigorous and brilliant chemical effects.

ELLERSLIE WALLACE.

THE SEARCH POWER OF THE CAMERA.

THE faculty of the modern lens and sensitive dry plate to bring to light matters not susceptible of discernment to the human eye has on numerous occasions been the subject of notices and comments in the photographic press, a remarkable instance being a case of measles, which showed in a negative, while no outward evidence appeared on the subject until three days after the picture was taken. Several instances of the detective properties of modern photography have lately come under the personal notice of the writer. The first example occurred in photographing a church,—an old colonial landmark,—which when built was of rubble masonry, with white pointed joints. High up in the gable was placed the datestone. Some sixty years ago the building was remodelled, and at the same time was treated to a coating of pebble-dash or rough coating, thereby completely obliterating the stone with its inscription,—its very existence had in the course of years been forgotten, and had escaped even the memory of the oldest inhabitant, although on several occasions sought for by historical students, not even a tradition could be found to give the position of the old stone. In making a picture of the building, to the surprise of the writer, the negative plainly showed the outline of the old stone, and the fact that it still existed back of the covering of mortar.

The second example occurred in photographing the portrait of Queen Christina of Sweden, now in the hall of the Historical Society of Pennsylvania. Two exposures were made, the plates used being the orthochromatic dry plate of commerce. Different lenses were used for each exposure, viz., Wray (London), Series D, and a Rapid Euryscope. After developing the plates, which were both a success, brush marks appeared over the head of the portrait, which were not noticeable on the painting, and on close examination of the negative the marks showed plainly the outlines of a crown or coronet. This caused a careful scrutiny of the painting and its history to be made.

On investigation it proved that the painting in question was a copy from the original painting by David Beek, a pupil of Vandyke, in the National Museum at Stockholm, by Mdle. Elise Arnberg of Stockholm. This portrait represents the Queen crowned, as did the faithful copy. However, when, during the Centennial year, the painting was acquired by representatives of the Historical Society, for some reason not known at the present day the crown was carefully painted out, and that part of the background made to correspond with the remainder, leaving the portrait of the Queen so familiar to all who attend the meetings of that Society.

The third experience was from a photographic standpoint even more curious. An old road map of Chester county had been loaned to the writer for the purpose of making a photographic copy. This looked easy; no difficulty was expected; the township lines were colored, it is true, but in light tints which offered no obstruction, while the lines and lettering, which were steel or copperplate, were more than usually sharp and distinct to the eye. The subject was put up in front of the camera in the usual manner, and the exposure made, the time, stop, and plate (B 16) being the same as were always used on similar work, and from the familiarity and experience with like subjects, it was not supposed for a moment that more than one trial was necessary to obtain a perfect copy. On developing the plate, however, the whole thing came out a blur,—not a sharp line or letter was to be seen on the plate. The only explanation of this was that the camera must have moved; but on examination the subject was found to be perfectly sharp on the ground glass. To make doubly sure a new focus was taken, with a magnifier to get the maximum of sharpness; the second exposure was then made, giving double the time,—result, same as before. The camera holder, lens, and all were again examined. A third exposure, giving only one half the time of the first plate, was then made with like result, every letter and line looking blurred. These three consecutive failures were something so unusual that a determined effort was now made to discover the cause. Another camera was taken, carefully examined, set up, and focussed with a glass to get extreme sharpness. Trials were then made with orthochromatic plates, with no better results. Notwithstanding the fact that pyro, eikonogen and oxalate developers were all tried in succession, all the plates were thin, and without a sharp line or letter. On some plates hardly a sign was to be seen of the black print on the map. A yellow color screen was also tried without result. Here, then, was a conundrum which we could not understand. So the map was taken to a professional (wet plate) operator, who makes a special business of copying, with the request to make a copy. "Nothing easier," he said; "Walk up stairs, and we will have it for you while you wait." However, after three trials with no better result than our own, he gave it up. He could not account for the matter any more than we could; but there they were, not a sharp letter or line on any of the three. We do not believe in witchcraft, but it certainly seemed as if that old map was bewitched.

We again tried it with orthochromatic dry plates, with and without color screen; result, the same miserable failure. It then occurred to the experimenter to examine the map carefully with a powerful magnifying glass without, however, detecting anything about the map to solve the mystery. In pondering over the matter, it occurred to us that the varnish might have something to do with our failures. So a corner of the map was treated to a dose of methylated spirits, applied with a wad of absorbent cotton. This seemed to dim the printed lines and make them much fainter. However, the subject was again put before the camera, with the same result, except as to the corner which had been treated to the methylated spirits. This was clear and sharp. Here was a solution to the mystery. The whole map was now similarly treated, and on the next day an attempt was made to get a serviceable copy, with a favorable result. The explanation of all the trouble was that the varnish had in some unaccountable manner acted on the black ink as it were, and the edges of the lines had run or spread. This fact, however, was not perceptible to the human eye, even with the use of a powerful magnifying glass, yet so great was the sensibility, perceptibility, or search-power of the camera that it caused the (for the time) unaccountable failures and vexations.

J. F. SACHSE.

Berwyn, March 9, 1890.

IT is whispered that men will carry parasols during the coming season. It is ordinarily difficult to fathom the decrees of fashions, but the reason for this particular decree is not hard to seek. It is to furnish men with a protection from the amateur photographer with his snap camera.

A REMARKABLE PHOTOGRAPHIC ROBBERY.

WHEN the late Empress Augusta, of Germany, was lying in state in the "Schloss Kapelle," in Berlin, Professor Shirm, the expert "Blitz" photographer, was commissioned by the Grand Duchess of Baden, the only daughter of the late Empress, to take a picture of the body at night with the aid of Blitz-Pulver, for the exclusive use of the immediate members of the imperial family. In this picture but a single living person was to appear, viz., the Grand Duchess standing at the head of the catafalque, mourning for the dead. Professionally, Prof. Shirm found himsel- confronted by a problem of the greatest difficulty, from the fact that all of the surf roundings and drapings were of the most sombre character, as were also the costume of the Grand Duchess; the palm branches with which the catafalque was decorated were of a dull green, with nothing to give detail or relief, while in sharp contrast were the ashy features of the living and the dead, which, together with the snow-white of the surrounding tapers, pillows, ribbons, etc., all tended to augment the difficulties of the photographer.

Extensive preparations had been made to obtain a successful negative. Twelve stands were erected in various parts of the chapel, on which flash-lamps were arranged to give the proper illumination; the plates were extra large, 26x36 cm. For obvious reasons, the greatest secresy was observed throughout the preparations. At last, when the appointed time had arrived, and all was in readiness, the duchess was posed beside the catafalque, the bulb pressed, the Blitz flashed, and the exposure was an accomplished fact. Now comes the curious part of the matter. By some means an enterprising photographer—whether amateur or professional does not appear—got wind of what it was intended to do, and by some means got access to the chapel with his camera, and there concealed himself. While Prof. Shirm was making his preparations, the intruder quietly set up his camera in his dark corner, and focussed on the group,—of course from a different point of view from Prof. Shirm. When the magnesium flashed brightly among the sombre surroundings, it impressed the scene on two sensitive plates. The intruder got out of the chapel as secretly as he had entered. The presence of a stranger was not even suspected until Berlin and other cities in Germany were flooded with prints from the surreptitious plate. These were at once suppressed by the police, and their sale in the future interdicted; so far as our information goes, however, without detecting the intruder or capturing the stolen plate.

J. F. S.

A DOWN east editor offered a prize of $50 and a year's subscription for the best-written proposal of marriage from a young lady to him. He picked out a nicely written, elegantly composed epistle from a beautiful and wealthy widow, answered it, accepting the proposal, and threatening her with a breach of promise suit, and finally scared her into marrying him.—*Ex.* This lady might have escaped this result, if she had followed the example of an exceedingly cautious young man who, acting under legal advice, signed all his letters to his fianceé, "Yours without prejudice."

AMATEUR EXPERIENCES.—II.

EDITOR AMERICAN JOURNAL:

Again I must protest. In the March JOURNAL you published an article entitled "A Seasonable Suggestion." I read it with pleasure, and was struck with its feasibility, and determined to act upon it at once. The idea of a series of prints taken of historic or noted trees struck me as especially opportune. I knew just where to find several such relics of the past, one in particular, a noble, wide-spreading oak, with which there was connected some revolutionary history, in addition to the gruesome legends of a mysterious murder which was said to have taken place under the shadow of the wide-spread branches. So I concluded to start on this tree. My outfit was overhauled and examined, plate-holders loaded up, and hopes expressed for a clear, fine day, without any high wind. I did not have long to wait; the opportunity arrived; I trudged along the soft country road for more than a mile from the station. There stood the tree in the centre of a field of emerald green. It was a beautiful subject, as it stood there with leafless branches outlined against the cloudless sky; but thereby hangs a sorrowful tale. But, not to anticipate, I got over the fence and set up my camera. After I got my distance, I took my plumb-line, and drove a piece of broom-stick in the ground to mark the spot, just as you had suggested. The image was sharp on the ground glass, and, as I was reaching for the plate-holder, I saw two agriculturists approaching rapidly towards where I was; one was old, the other young,—as I afterwards found out, they were father and son,—and both were reinforced with a fork-handle. However, thinking they were attracted by curiosity, I felt no misgivings, but went on to adjust my holder; but that was where I made a mistake. The elder of the pair, one of the farmer class who is supposed to have a whetstone back of his ear since the last harvest, opened out: "Say, Mister, don't yer knoa better ner trespassin on a poor man's property, an a trampin down his wheat, an destryin his groin crap?" I answered that I was doing him no harm, that I was an active member of the Leopardville Camera Club, and was only taking a picture of his fine old tree; but he winked and laughed; then the young fellow laughed too; then he asked me "if I was a goin to pay for the damage I had done?" I asked him what he considered I had ruined. After studying a few minutes, he thought twenty dollars would just about pay him. I still took the whole thing for a huge joke, and offered the old fellow a quarter to cover the supposed damage. However, when the old fellow told me to "hurry up," I commenced to get mad, and we had a talking match then and there, which ended in the rustic's telling me to "come along to the Squire." Well, as I still did not expect anything serious, I bundled up my outfit, and as there being no alternative, started for the "Squire," under guard of the elder of my captors and his fork-handle; the younger man remained home, as he said to look after the wheat field.

I still could not bring my mind to the fact that this whole hippodrome was anything but a practical joke that some one had set up on me; still I commenced to have serious misgivings. When we arrived at the "Squire's" office, that high and mighty functionary was there to receive us, something like a spider in his web, ready to welcome any stray fly that should happen to get entangled in his net. Photographic stock did not boom very much just then either. There was nothing in the action or appearance of the "Squire" to inspire either hope or confidence. A mere glance at his heavy, bleared eye, and nose of a crimson, with a delicate tracery of blue veins, all indicative of the active "anti-prohibitionist," was enough to make the mercury fall still lower.

My companion and captor opened the circus with "Mornin, Squire."

"Wot's the truble, Mikel?" replied the Judge.

"Well, Jedge, I got a prisner here; kort square in the act, a trespassin, Jedge; a trampin down my eight aker lot of wheat, Jedge."

I now started to protest vigorously, and appealed to the common-sense of the Squire, but all the satisfaction vouchsafed me was the order to my captor to "fetch him in."

By this time the Squire had taken his place back of his rickety desk, and opened his book, while I was placed before him. By this time every idle man and boy in the village had crowded into the dingy office. The first thing the Squire did was to tell a boy to "go and fetch Bill." Well, "Bill" came,—he was the constable,—then the "hearing" commenced.

Squire.—"The prisner will oncover when he is in the presence ov the majesty of the lawr."

I lost no time in taking off my hat.

Squire.—"Mikel, kiss the book,—now make yer charge."

Mikel Rychaff, sw.—"Well, Jedge, ye see as I were a lookin out an seein my grain a groin, and I sees this ere willian a trespassin over the lot, an a puttin up a machine, and a spilin me hole crap,—don't expect as it will be worth a cuttin by harvest, Jedge."

Squire.—"Got trespass boards up?"

Mikel.—"I hev, Jedge."

Squire.—"Prisner, this is a serus matter. The farmin community shall an must be pertected from sech prowlin destroyers as you. Hev ye got anything ter say why the judgment of this court should not be pronounced agin ye?"

I now again protested that the thing certainly could be nothing but a joke, as no damage whatever had been done or intended, as the old man's son could testify to if he were here.

Squire.—"Prisner, if ye wants the other one sent fur, it is your right under the Constitution. 'Bill,' jest go an supenny 'Elige' to come over here and make his affadavy."

This proved to be another mistake which I made. In due time the constable returned with "Elige," and the latter corroborated his father in every particular. At this point the Squire gave judgment as follows:

"Prisner, ye have hed a fare trial, and is adjudged guilty, an the judgment of this court is that ye pay a fine of five dollars an the cost of persecution, an stan committed ontil they is paid, an the majesty of the lawr windicated."

To say that I was indignant and mad is drawing it too mild. I tried to reason with the mighty potentate, but all to no purpose. I explained to him that I was an active member of the Leopardville Camera Club, and had read an interesting article in the AMERICAN JOURNAL OF PHOTOGRAPHY, and was only acting on its suggestions, but all to no purpose. I showed him the badge which I wear on my vest, and called his attention to our club button in the button-hole of the lappel of my coat; I even offered to take his picture, but all was in vain. While I talked and reasoned, he kept on scratching the paper with his pen, making up his bill of costs, as I found out to my sorrow. He turned the book for me to look at when he got through, and told me that the amount was $10.40 all told. Further, that if I didnt settle up pretty quick, he would have to make out a "mittimus" for "Bill" to take me to the county lock-up.

This matter had now become more than serious,—in fact, when I looked at the bill the mercury fell down below the spirit freezing point,—in fact, it was an extremely cold day for the "photographic studiosis." The account on his docket stated five dollars fine; costs, five dollars and forty cents; total, ten dollars and forty cents. I at once threatened to appeal to a higher court, but the only satisfaction I got was the information that there "wuz" no appeal, as the judgment was under $5.33, that his decision was under the act of 1810, and was final. So the best thing to do was to pay the fine and costs, gather up my traps, and start for the station, and leave the country that would permit so great an outrage upon a stranger who had done no harm. However, before I settled up, I demanded a transcript of his docket, which the "Jedge" made out after much difficulty. I send you the original document.

Now, Mr. Editor, have I any redress? Of course I shall bring the matter before the Leopardville Camera Club at our next conversational meeting, and we shall pass a unanimous vote of censure, but that will not give me back my money. What would you advise in the matter. There is balm for even the maiden's broken heart; but there seems to be no solace for the oppressed camera snap-shot. While there are special laws to protect the base ballist, the cycler, and other artists, nothing can be found on the statutes to shield the photographic student and amateur photographer from the unsentimental agriculturist and ignorant expounder of Coke and Blackstone.

Would it not be well for the various camera clubs to form a league and have special laws enacted for the encouragement and protection of their individual members when in pursuit of knowledge and beauty? We pause for a reply, and will be pleased to have an expression from members of other clubs upon this subject of confederation.

Communications sent in care of the AMERICAN JOURNAL OF PHOTOGRAPHY will be thankfully received by your suffering fellow-amateur,

J. FOCUS SNAPPSCHOTTE.

OUR ILLUSTRATION.

A COPY of an oil painting of the departure of Columbus from Palos, Spain, August 3, 1492, painted expressly for the Postmaster-General, and now on exhibition in one of the large mercantile establishments in the City of Brotherly Love. In view of the approaching quadri-centennial of the discovery of America it is peculiarly appropriate, and illustrates one of the most important epochs in the world's history. The negative was made by Mr. Thomas H. McCollin on a Carbutt orthochromatic plate, Ross lens, *f.* 20. The painting is in a dark position, and the cap was left off for full sixty minutes. The negative was developed with McCollin & Co.'s pyro-potash developer.

Crimanal Sute

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FOCUSSING IN LANDSCAPE PHOTOGRAPHY.

THE season is now fast approaching when landscape photography will engage the attention of all who are actively interested in the camera.

We scarcely feel it necessary to apologize for saying that well-worn as the subject is, we recur to it with pleasure, and feel that perhaps our pen is too apt to run away with us when we deal with this, the loveliest and most interesting portion of our art.

It is in every way gratifying to observe how extensively the art of Landscape Photography is now practiced, and how good are the results obtained. Those of us who have been identified with Photography since its earlier days, can remember when views of foreign countries were very hard to get, and correspondingly costly. We can remember when there were but few depots in this country for the sale of views taken in other lands, and when the interest manifested by the public in exhibitions of such views was but slight.

If there ever was a matter to which the time-honored saying, "Tempora mutantur, et nos mutamur in illis," could be properly applied, it is just this matter of the great increase of interest in Landscape Photography.

Our journals and text-books have pretty well exhausted themselves in instructions how to make landscapes. It must indeed be admitted that many kinds of the more commonplace country views are very easy to photograph; but if we come to deal with certain other kinds, difficulties of every sort will be encountered. It would lead us too far at present to enter into this in detail: we will confine ourselves to a portion of the matter that is not uninteresting. This is the sharpness of the picture, or, in stricter language, the definition given by the lens.

This question of optical definition includes those of focussing and of the selection of stops of the proper size. Now there has been much arguing whether the extreme distance should be as sharp as the foreground, and the idea has been advanced that inasmuch as the eye sees near objects more distinctly than distant ones, the latter should not be absolutely sharp in the photograph. This we think to be entirely a mistake. In the healthy human eye, everything that is seen at all is focussed upon the retina with an extreme of absolute sharpness, and the involuntary motions of the eyeball are so quick and finely adjusted that any object a little off the centre of sharpest definition, or in other words, those to which the attention is not directed with full force, are seen just as sharp, owing to the almost lightning-rapidity with which the eye follows the bent of the attention.

We may thus safely say that from the theoretical point of view all portions of the photographic landscape ought to be equally sharp, inasmuch as the original in nature is seen by the eye with uniform definition and distinctness.

A little practical experience with the camera, however, soon teaches us that absolute optical sharpness is never attainable, and that within certain limits our attempts to approach it are accompanied with the loss of many good qualities in the picture.

Depth of focus, or "reach," and good marginal definition, are only to be obtained by the use of stops comparatively small in size. Now, if for any reason a somewhat larger stop be inserted, we have the choice of throwing the sharpest definition far off into the distance, leaving the foreground somewhat badly defined, or of focussing the foreground very sharp, and allowing the distance to remain misty and unsharp.

Which of these plans is to be followed?

We believe that this question can only be satisfactorily answered by saying that the general interest of the subject itself must determine it. The very terms "foreground" and "distance" are relative ones, of course. Now, supposing the camera to be placed before a fine group of trees on a lawn, with a bit of mountain distance showing on either side of the trees, it would manifestly be a foolish thing either to focus for the mountains as principal objects, and neglect the trees, or to stop down the lens to such a small opening that the exposure would have to be lengthened, and make it difficult to get the foliage motionless, in the hope of securing both distance and foreground equally sharp. The right plan would be to focus for the trees, and use a large enough stop to secure the leaves still, and give proper detail in the dark parts of the negative with whatever exposure were given; and not leave an undertimed transparent patch for the foliage, which prints perfectly black, as we see so often. If the distance were a little unsharp, it would not matter.

Let us now ask our readers to consider an example of the opposite character. Suppose we ascended a rocky hill above the lawn with trees, just spoken of, and photographed the mountain chain that had appeared as distant objects in our former picture. We should need some foreground, of course, and could soon make it up out of the rocks and trees on the brow of the hill, with the addition of, perhaps, a figure or two. Desiring to obtain the distant mountains as large in size on the plate as possible, we put a longer focus-lens on the camera than we used on the lawn below, and find out at once that it does not possess as much depth or reach as the shorter focus one used for the previous picture. The mountain range being now the principle object, we focus upon it, and are not so particular if the large, boldly drawn foreground is a little wanting in sharpness.

The pith of what we have said, then, amounts to this: that the principal object or objects should be focussed upon, and want of fine definition dexterously thrown upon those portions of the picture that will best bear it. We are aware that all this sounds very easy and simple; so it is in actual practice, sometimes—but not always.

ELLERSLIE WALLACE.

TINTING LANTERN SLIDES.—"Eureso" writes on this subject as follows:—"As I suppose many amateurs like myself have been engaged in spoiling lantern slides in trying to tint them, a description of my method of tinting large surfaces, such as skies, may not be out of place. If I wish to color, say, the sky, I first cover all the parts of the slide except the sky with some substance which repels water, but which can afterwards be entirely removed. I find india-rubber solution answers well if carefully applied. I then soak the slide in water to thoroughly soften the film, and then dip it in a solution of aniline dye of a suitable color in water. The depth of color will depend on the strength of solution and length of immersion of the slide. A graduated sky can be made by gradually dipping the slide into the solution. By this means the sky nearer the zenith gets longer immersed than the part near the horizon. The india-rubber coating can afterwards be easily removed with the finger.

—*Photography.*

THE PROFESSIONAL PHOTOGRAPHERS OF GERMANY AND THEIR METHODS OF DEVELOPMENT.

EARLY in the present year the publishers of *Liesegang's Photgraphisches Archiv* in Dusseldorf, Germany, prepared a circular to be sent to the most celebrated professional photographers within the German realm, for the purpose of thoroughly settling the question as to what special developer, formulated for gelatin dry plates, was in most general use with professional artists who make portraiture their specialty, further asking information how their special formula works in every day practice. As a test whether the scheme would meet with a favorable reception, and bring forth free responses, it was concluded to send out at first but half a hundred of these circulars as a feeler. To the surprise of the projectors of the scheme, twenty-eight replies were received within a few days.

The editor of the *Archiv* prefixes the list with the explanation that they do not wish it to appear as if they believed the success of photographic portraiture to depend solely upon the composition of the developer. We reproduce the list entire for the benefit of our readers, both amateur and professional, that they may gather such facts and hints as have proved of value in the practice and experience of the most successful artists in the far-off Fatherland.

The circular contained the following four leading questions, viz:

1. What developer do you use in your portrait studio?
2. What special properties or qualifications do you claim for your developer?
3. Give combination of solutions used in cases of normal exposure?
4. Do you use a preliminary bath (Vorbad), and what of?

HERR VON AYX, Mainz.

Developer.—Eikonogen.

Properties.—The brilliant action on the half-tones and high-lights during reduction, with proper manipulation.

Composition:

No. I.

Sulphite soda	200 g.
Aqua dest.	3000 g.
Eikonogen	50 g.

First pulverize the sulphite, then dissolve in the water, to this solution add the Eikonogen in crystals, place the whole in a water bath until the latter is wholly dissolved.

No. II.

Carb. soda	150 g.
Aqua destil	1000 g.

For use, 3 parts, No. I.—2 parts, No. II. Vorbad, none.

CARL BORNTRÄGER, Hofphotograph Wiesbaden.

Developer.—Eikonogen.

Properties.—It permits of a shorter exposure than any other developer known to me; works out fine detail, neither monotone nor too hard, with great rapidity.

Composition:

A.

Aqua dest	1500 c.cm.
Sulphite soda, C. P.	100 g.
Eikenogen,	50 g.

Dissolve the sulphite and eikonogen in hot water. Keep this solution in a dark bottle with ground-glass stopper, in dark closet away from all contact with ammonia or acids.

B.

Aqua dest	500 c.cm.
Carbonate potassium ,C.'P.	75 g.

For use, three parts A to one part B immediately before using. When plates are developed far enough wash well under tap, then place in 5 per cent. alum bath for one minute, again wash thoroughly and fix in bath.

Aqua	800 c.cm.
Hypo	200 g.
Bi Carbonate soda, C. P.	40 g.

Vorbad.—None.

HEINRICH FRITZ, Hofphotograph-Greiz.

Developer.—Eikonogen.

Properties.—Advantages over the oxalate developer formerly in exclusive use: 1. Shortening time of exposure by one-half, so that slower and better plates can be used. 2. Use of developer until exhausted, therefore much cheaper and convenient.

Composition:

Sulphite soda	100 g.
Carbonate potassium	40 g.
Eikonogen	20 g.

to which is added a few drops of hypo 1 ; 50.

(Note in the original the volume of water is not given.)

By addition of water and bromide potassium over-exposed plates may be easily corrected.

Vorbad.—Unnecessary with above developer.

ARNO KERSTEN, Hofphotograph, Altenburg i S.

Developer.—At present only Eikonogen (since six months), prior to that oxalate and iron exclusively.

Properties.—The local water supply is strongly impregnated with limestone, and great difficulty was experienced in cleaning the hands and utensils while iron was used; therefore eikonogen is now exclusively used. In addition, I value the rapidity of development, the softness and clearness of the shadows, in spite of which they still have enough strength. I use my own dry plates made after Obernetter's modified formula.

Composition.—I rub 12 g. eikonogen crystals to powder in a small wedgewood mortar; pour this into a funnel; after closing the opening with cotton, I then add 50 g. pulverized sulphite of soda, then fill the funnel with 750 c. cm. dest. water; stir with glass rod until filtered. To this add 8–10 c. cm., concentrated solution bisulphite soda, at 38° R., which almost destroys the color of the filtered solution.

Then pour 38 g. calcined soda c. p. in the same funnel with 250 c. cm. dest. water filter when dissolved; then pour both solution together and shake well. Thus I make 1 Liter of developer in 15 minutes with out using boiling water.

Vorbad.—Not necessary in normal cases; when necessary, take 1 part hypo to 3–10,000 parts water; soak the plate a minute, then develop without washing.

Fixing Bath.—1 part hypo to 5 parts water; to 3 liter of this solution add 50 c. cm., concentrated solution bi-sulphite soda.

Julius Schaar, Dusseldorf.

Developer.—Eikonogen.

Properties.—Quick and strong action; the negative being very soft yet strong, without having to resort to intensification, with attentive manipulation the picture appears in 3 to 4 minutes beautifully modulated.

Composition.

A.

Aqua dest.	1 liter.
Sulphite soda	10 g.
Eikonogen	10 g.

B.

Carbonate potassium	150 g.
Aqua dest.	1 liter.
Hypo	½ g.

take equal parts.

L. Springer, Hirshberg in Schlesien.

Developer.—During the past six months Eikonogen, with great advantage, in place, of all others.

Properties.—Magnificent, clear, yet strong negatives, when developed until the deepest shadows show through; results, not to be obtained with any other developer.

Composition:

A.

Sulphite soda	200 g.
Aqua destie	3000 g.
Eikonogen	50 g.

B.

Carbonate soda (chr.)	150 g.
Aqua destis	1000 g.

For use: A, 1 part; B, 2 parts. Fixing bath:

Hypo.	250 g.
Sulphite soda	50 g.
Water	1000 g.
Sulphuric acid	8-10 g.

In developing a plate, old developer is first used until the image appears, this is then poured off and completed with fresh developer until the negative is very strong, as the negative is apt to reduce in the fixing bath.

In copying poor photographs the oxalate developer is used, as the eikonogen brings out the grain of the paper in too great relief. This fact in itself is a proof that greater results are obtained with eikonogen than any other developer.

I. H. VOIGHT, Hofphotograph Homburg, v.d. Höhe.

Developer.—Eikonogen for negatives as well as contact prints and enlargements on chlor. and bromide paper.

Properties.—The image appears rapidly, and develops gradually until the required density is reached, when it may be immediately checked. If proper attention is paid to the work, neither intensification nor reduction is necessary with my developer. A clear picture is obtained, perfect in all detail.

Water	500 g.
Sulphite soda	25 g.
Carbonate potassa	5 g.
" of soda	15 g.
Eikonogen	5 g.

Eikonogen must be pulverized in a mortar to thoroughly dissolve.

P. BARTH, in Elberfeld.

Developer.—Iron oxalate.

Properties.—Simplicity, greater capabilities of development, especially in the case where a large number of plates are to be developed consecutively.

Composition.—Saturated solution. Just so much iron is to be added to the oxalate as the latter will stand without becoming turpid. I wish to mention it is, on the whole, immaterial what developer is used. The whole difficulty in portrait photography consists in properly lighting the subject.

EMIL BECHER DILLENBURG.

Developer.—Iron Oxalate.

Properties.—With this developer I always obtain the same results. It is easy and simple in its manipulation, and gives negatives, such as are only obtained with hydroquinone or eikonogen, under extraordinary favorable circumstances. It also allows (in my experience) shorter exposure.

Composition.—Sulphate of iron and oxalate of potash are dissolved in distilled water. For cabinet plates I take 12 g. iron to 40 g. oxalate, by normal exposure. When the light was weak, increase the volume of developer one-half. In over-exposure, reduce the volume of developer and add water. The chemicals must be pure.

[Note.—I prepare my own dry plates.]

A. BLANKHORN, Hofphotograph Offenbach a. m.

Developer.—Iron Oxalate. (Tried, Hydrochinon, plates fogged, time too long, preparation too complicated, also too dear).

Properties.—Simplicity of manipulation, absolute safety, and cheapness.

Composition:

A.

Sulphate of iron	1 part.
Distilled water	3 parts.

B.

Oxalate of potash	1 part.
Distilled water	3½ parts.

Dissolve warm. Just before using, mix 1 part A to 2 parts B. For underexposure add 1 drop soda (to -15-45 solution) when partly developed. In case of overexposure 2-3 drops bromide potassium.

Vorbad.—For short exposures 1-2 minutes in hypobath, 1-1000 for instantaneous pictures of children invaluable.

CATHARINA CULIE, Frankfurt a. M.

Developer.—Iron oxalate.

Advantages.—For portraiture, when the artist has complete control of the lighting and exposure, I consider a developer which always works evenly as the most desirable—and that one is the iron oxalate. I have not been able to obtain equal results as to detail or lights with any other developer. It is also cleanly, and its use is not harmful to the skin.

Composition.=Iron, 1-3; oxal. pot., 1-4.

Developer.- -1-4.

Vorbad.—Always 30″—1-2000.

R. FATH, HALBERSTADT.

Developer.—Ferrous oxalate.

Advantages.—In comparison with all other developers, quicker action, with greater modulation.

Composition.—1-3.

Vorbad.—Negatives of children and copies—a bath of soda.

F. W. GELDMACHER, Frankfurt, a. M.

Developer.—Oxalate of potash and iron.

Advantages.—That I rarely lose a plate by over or under exposure, a property which I cannot reach with any other developer.

Composition.—Potash, 1-3½; iron, 1-3; hereof 3 parts potash, 1 part iron dissolved in hot water.

Vorbad.—Water, 1 liter; hypo., piece as large as a pea, soak 1 min.; fix without washing.

PROF. E. HANFSTAENGLE, Frankfurt, a. M.

Developer.—Exclusively oxalate.

Advantages.—Absolute freedom from fog.

Composition:

A.

Oxalate of potash	1 kg.
Water	4 kg.

B.

Sulphate of Iron	½ kg.
Water	1½ kg.

For use, 1 part iron to 3 parts oxalate.

Vorbad.—Hypo for child exposure only, dissolve 1½ g. hypo in water 20 c.cm; of this solution take 1½ c.cm to 500 c.cm water.

FR. KAHLMEYER, in Osnabrück.

Developer.—Ferrous Oxalate.

Advantages.—Simplicity, cheapness, cleanliness.

Composition.—(A) 1000 V; (B) 250 g. Neutraloxalate potash crystals; 3 parts A, 1 part B.

Vorbad.—For short exposures add to developer 10 g., hypo solution 1:200.

N. LEYENDECKER, in Berncastel.

Developer.—Iron oxalate.

Vorbad.—None.

FR. E. MARR, ZWEIBRÜCKEN.

Developer.—Ferrous Oxalate.

Advantages.—Any desired intensity and fine gradations can be attained.

Composition.—Both solutions are made 1 : 4, and for use mixed 1 : 4. (I only use extra heavy plates.)

Vorbad.—Plates receive ample exposure, and developed with much bromide, also when hypo vorbad was used.

PETER RISSE in Duisburg.

Developer.—Ferrous Oxalate.

Advantages.—Surety.

Composition.—Both solutions saturated. Iron added according to circumstances, relative to lighting, exposure and plate.

Vorbad.—Only occasionally, and then 1 part hypo, 2000 water.

ARNOLD OVERBECK in Düsseldorf.

Developer.—Iron and Oxalate of Potash.

Advantages.—Simplicity and great latitude

Composition.—1 Iron, 3 Oxalate.

Vorbad.—With short exposures, hypo 1 : 5000.

A. STERNITZKI, BRAUNSCHWEIG.

Developer.—In general oxalate, with short exposures (children) hydrochinon. I miss, however, here the important question," What plates?" As in my experience the various developers do not act the same with all makes of plates; for instance with English and some German plates, I should decidedly prefer pyrogalliol, while in the portraiture of children with the "Schleussner" plates I would use hydrochinon.

Advantages.—Oxalate gives with Monckhoven plates, which I mainly use, a clear picture with fine detail and clean plates; but even here it depends on the different emulsions, and often to obtain suitable negatives I resort to hydrochinon.

Composition.—Oxalate both solutions, saturated and used in proportions of 1-3 to 1-4. Hydrochinon and pyrogalliol according to the usual formula.

Vorbad.—Only unwillingly; I would much rather add a little hypo to the developer.

CARL BELLACH, Leipzig.

Developer.—Hydrochinon; also a mixture of hydrochinon and eikonogen.

Advantages.—More rapid appearance of image and completion of development with nice contrasts. Eikonogen alone works to monotone, and requires too much time for intensification. For very short exposures, eikonogen answers to start the development; hydrochinon to complete the reduction.

Composition:

Hydrochinon No. 1.

Water	2000
Sulphite soda	180
Hydrochinon	30
Carbonate of potash	180–200

for under exposures, warm developer to 50° R.

Hydrochinon No. 2.

Water	1000
Sulphite soda	90
Carbonate potash	120–150
Hydrochinon	1

for extra short exposures, children, etc.

Commence development with No. 2; after detail is out finish with No. 1.

EIKONOGEN.

Water	1000
Sulphite soda	90
Carb. potash	40
Carb. soda	10
Eikonogen	20

A developer composed of hydrochinon and eikonogen as above will be found advantageous in certain cases.

Vorbad.—Never.

THEODORE KLAUER, in Offenbach a. M.

Developer.—Hydrochinon.

Advantages.—Softness of shadows, with relative short exposure.

Composition:

A.

Water	500
Sulphite soda	70
Hydrochinon	10

B.

Water	400
Soda	50

For use, 3 parts No. 1; 4 parts No 2.

Vorbad:

Sulphite soda	50
Water	1000
Hypo	2

C. HERTEL, Hofphotograph in Mainz.

Developer.—Pyro-soda.

Advantages.—1. Clean work. 2. Great latitude of exposure. 3. Black tone.

Composition:

A.

Solution sulphite soda	1-10
Pyrogallus acid	1-5 per cent.

B.

Solution of soda . . . . 5-10 per cent.

Equal parts A and B.

Vorbad:

ANSELM SCHMITZ, Königl. Hof. Photograph, Koln.

Developer.—The Sulfo-Pyrogall-Developer.

Advantage.—The developer furnishes brilliant negatives of superior detail.

Composition:

A.

Water	64
Sulphite soda	16
Citric acid	1
Pyrogall	1

B.

Water	64
Sulphite soda	8
Carbonate of soda	32

Developer.—Equal parts A and B, diluted with 20 parts water. Equal results have been attained with other formulæ; the advantages which I claim are not the result of this formula in particular, but of pyrogalliol in general. I have tested all other developers, as they appeared, among others the much vaunted eikonogen, but soon came to the conviction that pyro. is far superior. For short and instantaneous exposures, eikonogen in its various combinations has been presistently praised, as it was claimed that greater results and detail were to be obtained with the new agent than any other. I have, however, obtained results far, far greater with pyrogalliol, as I show from the enclosed prints.

Vorbad.—None.

A. STOCK, Hof. Photograph, Guben.

Developer.—Pyrogall.

Advantages.—Very rapid development, complete in three minutes; at the same time vigorous results. In a few minutes every grade of strength can be attained.

Composition:

A.

Pyrogallol	15 g.
Sulphite soda	30 g.
Water	500 g.

B.

Pure soda	100 g.
Water	1000 g.

For use, equal parts A and B, diluted with one-third water with several drops bromide. For underexposed plates use with bromide or water.

It will be seen by the above responses that one-half of the whole number still adhere to the favorite German stand-by—ferrous oxalate,—their main reasons given being the simplicity, uniformity of action, cheapness, cleanliness, and freedom from fog. Seven of the whole number have become converts to the new candidate for photographic favor—viz., eikonogen,—on account of the quicker action, allowing of shorter exposure, together with finer grain and detail; the factor of price is also an object in its favor.

Three are equally enthusiastic in their praise of pyro., which we in this country can agree to. One is a convert to hydrochinone, while another promulgates the questionable formula of mixing hydrochinone and eikonogen. It will be noticed that ten photographers only approve of an occasional preliminary bath (vorbad).

We are in receipt of advance sheets of twenty-four additional replies, which we expect to present to our readers in the coming month.

The attention of both professionals and amateurs is called to the fact that above all relate to the department of studio portraiture only.

JULIUS F. SACHSE.

PALLADIUM TONING.

PALLADIUM was discovered by Wollaston in the ore of platinum. The metal has but little affinity for oxygen, undergoing no change in the open air. It is dissolved by nitric acid and by aqua-regia; other acids have but little action on it. The oxide PdO, palladous oxide, is the base of the ordinary salts of the metal. The salt which may prove useful in the printing processes of photography is palladous chloride, $PdCl_2$. It is prepared by acting on palladium with aqua-regia, and evaporating; the brown hydrated crystals, when heated to redness, lose chlorine, leaving metallic palladium, resembling platinum in this respect as well as in the formation of double salts with the alkaline metals.

Nothing can be simpler than the process of palladium "toning." A silver print is first obtained on plain salted paper. This is washed, preferably in water containing a little common salt, after which it is again brushed over with a solution of palladous chloride, containing a drop or two of dilute nitric acid. A change almost immediately ensues, palladium taking the place of silver.

To insure success in the production of palladium prints, nothing is required but to print deeply and wash thoroughly, to use a very dilute and slightly acid solution of the palladous salt, and fix in "hypo," containing just enough ammonia to smell of it, giving each batch of prints a new bath. The finished print has somewhat the appearance of a drawing in India ink, especially if done on Whatman's paper. Palladium is a rare metal; its price is quoted in a list I have by me at 25s. per drachm, while the solution of palladous chloride is 35s. per ounce. But considering the minute quantity used in the production of a photographic print, the price perhaps is of little consequence. I am aware that the method of procedure is not new, but the use of palladium in "toning" is, I believe, a novelty.—FRANK P. PERKINS, F.I.C., in *Photography*.

HE KNEW HIS BOY.—Father (to Photo. artist): "I would like you to give my son a chance in your studio."

Photo. Artist: "What can the lad do?"

Father: "Well, at first he couldn't do any thing more than take charge of all the operating, retouching, and oversee the printing department, but later on when he has more experience he will be right handy to do the sweeping, clean the windows and sift the ashes."

PHOTOGRAPHIC SOCIETY OF PHILADELPHIA.

A SPECIAL MEETING.

A SPECIAL meeting of the Society was held on Tuesday afternoon, April 1st, 1890, with Vice-President John G. Bullock in the chair.

The Chairman announced to the Society the sudden death of their President, Mr. Frederic Graff, which occurred on Sunday morning, March 30th.

After the reading of the formal call for the meeting by the Secretary, remarks were made by a number of members, expressive of their strong affection and high admiration for their late presiding officer, and deepest grief at his loss. His kindly spirit towards all with whom he came in contact, his painstaking care and energy in all work falling to his share, his great interest in photography, and particularly in this Society, whose growth he had watched and fostered from its infancy, were dwelt upon. Among those who spoke were Messrs. John G. Bullock, John C. Browne, Francis T. Fassett, W. H. Walmsley, R. T. Hazzard, Edmund Stirling, Francis Burrows, Evan Ellis, and Dr. Charles L. Mitchell. Letters of condolence were also received from Messrs. W. D. H. Wilson, R. W. Kear, and Charles R. Pancoast.

On motion of Mr. Stirling a committee was appointed by the Chair to draft a suitable minute in regard to the death of Mr. Graff for publication in the daily papers, to report at the stated meeting on 2d instant, and also to prepare a more formal memorial to be published by the Society at a later date. The meeting then adjourned.

At the regular meeting held on April 2d, 1890, the following minute, prepared in accordance with the action at the special meeting, was adopted and ordered to be published, after which, out of respect to the the memory of their deceased President, the Society adjourned.

"The members of the Photographic Society of Philadelphia desire to testify to their sense of the great loss they have sustained in the death of their President, Frederic Graff. They feel that by his death not only have they lost a most efficient presiding officer, but that each one has been bereft of a dear friend, a sage counselor, and one who gave of his very best to promote the interests and well-being of the association.

For nearly thirty years his official connection with the Society has been continuous—as Chairman of the meeting called to organize the same, then as Vice-President, and serving two terms as President. He may indeed be called its Father. To his untiring zeal for its welfare the Society is in a great measure indebted for the present high position it holds in the photographic world.

(Signed) JOHN G. BULLOCK, *Vice-President.*
April 2d, 1890. ROBERT S. REDFIELD, *Secretary.*

AN ADJOURNED STATED MEETING.

AN adjourned stated meeting of the Society was held Wednesday evening, April 9th, 1890, with Vice-President John G. Bullock in the chair.

Communications were read by the Secretary from the New Orleans Camera Club, inviting members to be present at the opening of their new rooms on April

16th, and from the editor of the *Photographic Times*, presenting a copy of "Practical Photo-micrography," by Andrew Pringle, for both of which votes of thanks were passed.

The Secretary also reported that owing to the removal of the Society of Amateur Photographers of New York to new quarters, which would fully engross the attention of both officers and members for some months, they desired to postpone holding Joint Exhibition until sometime in the autumn. The Joint Exhibition Council, however, had decided that for various reasons a fall exhibition was not advisable, and it had therefore been agreed to postpone the exhibition until the spring of 1891.

The Committee on Lantern Slides presented a full report in regard to the public exhibition of slides, illustrative of the work of members, which had been held at Association Hall on the evening of March 12th. The exhibit was one of the best ever made by the Society, and furnished unmistakable evidence of a general improvement in technical and artistic photography on the part of the members. The attendance was large, and the display was evidently a source of pleasure and satisfaction to all who saw it. One hundred and eighty-three slides were selected by the Committee for exhibition, representing the work of fifty-three members. Mr. Frank Bement kindly loaned his dissolving lanterns and exhibited the slides, and Dr. Charles L. Mitchell acted as spokesman of the Society, welcoming the audience and announcing and explaining the views as they appeared on the screen.

The Committee on Membership reported the election of the following active members: Erwin Agnew, M.D., Jerome B. Craven, and George Howard Perkins.

Mr. Browne, referring to the loss the Society had sustained in the death of their President, Mr. Frederic Graff, said it had seemed to certain of the members desirable that the position of President should be filled at once. In the minds of some it was an open question whether by virtue of the death of the President the Senior Vice-President did not become President. It was desirable to remove all uncertainty in regard to the question, and he therefore nominated Mr. John G. Bullock for the office of President. The nomination being seconded by Mr. F. T. Fassitt, Mr. Bullock was unanimously elected President.

Dr. Mitchell, of the Executive Committee, read a communication which had been handed to him by the author, Mr. Frank H. Rosengarten, entitled, "Working Department of the Photographic Society of Philadelphia." The paper was a lengthy plea for enlarging the scope and usefulness of the Society, giving a history of previous efforts which had been made in this direction, and accompanied by circulars and other data illustrative of the workings of the Camera Club of London.

Considerable discussion followed the communication, during which Mr. Browne called attention to the fact that before the end of the year the Society would have to consider the important question of a change of quarters, and also the undesirability of discussing important matters of this kind in open meeting. He thought a special committee might be appointed to consider all propositions made to it, and in this way relieve the Society from a great deal of discussion.

Dr. Mitchell moved that the Chair appoint a special committee, to consist of the President, Vice-President, Secretary, and Treasurer, and six other members, to consider and report to the Society the advisability of procuring other and more convenient quarters, and the institution and development of a suitable working department for the instruction and improvement of members in photographic work.

Carried.

On motion of Dr. Mitchell it was also resolved that a special committee of three be appointed by the Chair to make such revision of the By-Laws of the Society as may be needed, and to report at the regular meeting to be held on October 1st, 1890.

Mr. Carbutt, alluding to a letter he had read at a previous meeting, from Mr. Pancoast, in regard to keeping qualities of plates, showed a negative sent him by the same gentleman, made recently on a Carbutt A Plate which had been coated about 1884 or 1885. The negative showed no signs of deterioration on account of age of the plate.

Mr. Browne, referring to the appointment of a commmittee to ascertain the cause of certain deterioration in lantern slides, said that within the last two weeks he had examined a large number of slides with a table microscope having a two-inch objective. With a glass of this power, he noticed that in a good many cases the crystallization or cloudiness is formed on the cover glass, but not invariably so. It has been said that a great deal of this difficulty arises from the quality or composition of the glass—that from the thin glass now used both for picture and cover emanates some chemical injurious to the slide. This might be so, but in his experience, which had been almost entirely with the quality known as " B. P. C.," he could not lay this fault to the glass. In examining the slides he found a great deal of matter evidently deposited from impure washing water, which seemed to consist of particles of vegetable matter, mud and sediment of various kinds which had not been perfectly washed off. He also thought that the central spots from which the crystallization started were sometimes due to hyposulphite of soda in the gelatine film. Years ago, having trouble of this kind, he had commenced using diluted cyanide of potassium instead of hypo. for fixing slides. Slides so fixed did not show any of the faults in question. A great deal of the trouble, he thought, arose from intensification. The purchasers of commercially-prepared slides demand very dense positives, which makes it desirable to use some form of intensification. Among the chemicals used for this purpose is sulphide of potassium, which to his mind is most objectionable. He had found the treatment with bichloride of mercury, followed by a bath of bichloride of platinum, to make a permanent and safe intensifier.

Mr. Fassitt had found the treatment with mercury invariably fatal to a gelatine slide.

Dr. Wallace thought the question of fading depended not so much on the use of mercury as upon what the mercury was followed by. If ammonia was used, the result would be disastrous; but with cyanide of silver the picture would not fade.

Mr. Carbutt, referring to the use of cyanide of potassium for fixing gelatine slides, said it could be used if a perfectly pure article was obtained. The ordinary commercial cyanide contained caustic potash, which had a deleterious effect on the film. He recommended a solution of eight or ten grains to the ounce as suitable for fixing an ordinary gelatine plate with safety

Mr. Rosengarten said that most of the hypo. used contained large quantities of foreign matter and impurities. In his own practice he used only the pure article.

Mr. Bell endorsed the remarks of Dr. Wallace relative to the use of mercury. It was not the mercury itself, but what followed it. If followed with bromide of potassium, it was perfectly permanent; if with sulphide of soda, the same as ammonia. If with cyanide of silver, it is perfectly permanent.

Mr. Carbutt claimed that there was no need of intensifying lantern slides. He had been making some positives requiring great density; it was simply done with pyro, soda and bromide.

The action of the alkali should be well restrained, and the exposure as full as subject and conditions will allow.

In the instance referred to, it was nearly a minute before the image began to show. It was a positive made by contact. For the purposes of those using his process plates, the developer consisted of: Water, 60 ounces; carbonate of soda crystals, 2 ounces; sulphide of soda crystals, 4 ounces; bromide of soda or potash, 60 grains. To each ounce of the above, 2½ to 3 grains of dry pyro is added. By this means perfectly clear glass in the transparent parts of the negative, and very dense blacks can readily be obtained.

Dr. Mitchell showed an 8 x 10 Irving Camera, recently introduced by the Scovill & Adams Company. The weight of camera alone is but six pounds, and with plateholder and carrying case, but nine pounds. It has no sliding front, but when pointing the camera above or below the horizonal line, the swinging front as well as the swing back are brought to a perpendicular, thus doing away with any necessity for a sliding front of the usual form. The focusing is effected by a rack work, operated by a pinion set horizontally on base board of camera. By this arrangement, when camera is closed, all projecting screws, brass work, etc., are avoided. The 8 x 10 size extends about eighteen inches.

The meeting closed with the exhibition of one of Moessard's Panoramic Cameras, recently imported and sent by Mr. Frederic Gutekunst.

Adjourned. ROBERT S. REDFIELD, *Secretary.*

THE CAMERA IN COURT.

IN addition to the manifold uses of the camera, photography has lately been called into requisition in civil law-suits. We have received from Mr. C. H. Miller, the official photographer of the Philadelphia & Reading R. R. Co., an account of two law-suits for damages which were gained by the company by means of his photographs of the spot where the accidents occurred—silently but surely contradicting the evidence of witnesses on the other side. In the first case, the claimants deposed that there was not room enough at the station to turn a carriage without the danger of going over an embankment; however, on the production of a photograph of the location, the Judge charged "that the photograph showed the top of the plateau to be wide enough to drive around without any danger of the horse going over the bank, therefore there was no reason why suit should be brought against the railroad, as it was plainly shown that they were in no way responsible."

The other case was even more curious. Two men were killed at a road crossing. Suit was brought, and witnesses were produced on the trial who testified that there was a bank at least ten feet high, which prevented the tracks and approaching trains from being seen. After their side of the case was closed, photographs were produced by the defence showing that the bank was not quite three feet high, and that the tracks were visible for over two miles to persons walking in either direction, and further to persons in a wagon, which was the case with the men who were killed. As soon as the Judge saw the photograph, which showed the bank and also at least two miles of tracks, he declared that the railroad was in no way responsible for the accident. Non-suits were entered in both cases.

GENERAL NOTES.

IT is a significant fact that up to the present time there have been two hundred and seventy permits issned in New York to amateur photographers who wish to practice in Central Park. From the way that applications are coming in, it is estimated that the number this year will exceed over 2500,—over 1700 permits were issued to amateurs for the year 1889. The photography by amateurs of the lakes, walks, woods, of Central Park is of comparatively recent date, but very little in that line having been done previous to 1888. S.

GLORY awaits the first amateur photographer who will take a picture of globular lightning, a phenomenon known to occur, but of which no trustworthy evidence exists.

IN some parts of England the old dodge of setting up a camera in front of a house, pretending to photograph it, taking the money on the nail, and departing never to return, is again being tried. A short time ago two traveling photographers from Yarmouth were brought up at the Needham Market Petty Sessions upon three charges of obtaining money under false pretenses. In appears that in each case they took a portrait of the prosecuting individuals, and as no photographs were forthcoming for over a week proceedings were instituted. The prisoners were committed for trial.

A NOVEL APPLICATION OF PHOTOGRAPHY.—A graphic history of the new Library Building at Washington, D.C., is being prepared, and when it is completed it will be one of the most unique narratives of a building that has ever been written. The pencil used is the rays of the sun, and the paper is the sensitive plate of a photographic camera. Every ten days, from the top of the building occupied by Architect Felz and his force of draughtsmen, one of the employés directs a camera upon the great hole which has been dug out in the square, just east of the Capitol grounds. Every detail of the condition of the work, the height of the walls, the piles of material on hand, is accurately impressed upon the plate. Photographs are filed away, properly labeled, and can be produced if any question arises as to what was done or what was not done at any stage of the work. If, for instance, a contractor asserts that he had a certain material on the ground at a certain date, he can be confronted with a photograph, and asked to point out where the material was deposited. The photographs are not taken for this purpose exclusively. They are found to be a valuable supplement to the written records kept by the assistants of Bernard R. Green, who is in charge of the work of construction, under the direction of Colonel Casey. This is rather a novel use for the photographic camera, and the photographs taken will be of great interest in years to come.—*Village* (*W. C.*) *Record.*

CAUSE AND EFFECT.—Miss Antique (displeased with her photographs)—"This is the fourth sitting I have given you, and the picture is even worse than the first."

Photographer—"Yes, miss; the last sitting was a month after the first, and you were a month older, you know."—*Keystone.*

IN commercial photo-engraving, zinc etching, and the gelatine relief process, it is absolutely necessary that the exposure be properly timed, the period depending upon the depth of shading required. Any increase in the duration of the exposure will cause what is termed an "overprint," which is not satisfactory, as the finer lines of the original are not produced. An electric alarm has now been devised, which gives warning by the ringing of a bell of the proper exposure, so that the operator is free to attend to other duties without fear of neglect or over-exposure of the plate. —*Exchange.*

THE latest photographic curiosity is the rhombohedral camera of Professor Cohn, of Breslau, by which a picture can be taken while the eye is regarding it in the glass screen. This is effected in the following way: Two rhombohedra of glass are placed in a special chamber just behind the camera lens, by which means two images are thrown upon the upper and lower halves respectively of the ground glass screen, the eye looking along a path between the two rhombohedra. To use the instrument a sensitive plate is put in place of the upper half of the ground glass. When a sharply defined image has been obtained upon the lower glass, an instantaneous shutter is released in the interior of the camera in front of the upper rhombohedron, and the picture is obtained on the sensitive plate.—*Photo. News* (*London*).

THE publishers of *Varnish*, a monthly journal issued at 1713 Broadway, New York, devoted to the carriage painting and varnish interests, presented their subscribers for the current year with a prize picture 18x28 inches, printed in oil colors by Armstrong & Co., of the Riverside Press, Cambridge, Mass. It is a fac-simile of an oil painting by Winslow Hosmer, known as "The Army Teamsters," and does credit to all parties. To us the picture recalls years gone by, and once more brings up vividly to our memory visions of the past, when the roll of the drum and note of the bugle were heard throughout the land. The intelligent contraband—the ever tired teamster—the musical bray of the "team"—are all once more before us. Thanks for your courtesy towards us, Brother *Varnish*. We wish you all the success you deserve. ED.

FIXING WITH MAGNESIUM CHLORIDE.—Magnesium chloride ($Mg\ Cl_2$), which, as the older operators will remember, served as a useful addition to the collodion, by which the vigor of the negative was increased, and the solarization of the sky prevented, has of late been tried by Herr R. E. Liesegang as a fixing agent for gelatino-chloride paper. This experimenter found that prints on this paper were completely fixed if treated with a diluted solution of this salt, and that they were not at all reduced in vigor, as is the case with hypo, ammonia, and sulphocyanide of ammonia. The fixed prints keep well; but as the gelatine of the film is slightly attacked by the salt, it is advisable to add a small quantity of alum to the bath. "Perhaps," says the author, "the magnesium chloride, on account of these properties, can be used for fixing photographs in natural colors."—*Archiv.*

THE wife of a well-known official in this city was heard to say, apropos of art: " My husband is fond of ile paintings, but I prefer itchings."

Brown—" Does your wife keep her temper very well?" *Jones*—" Um—um—er—some; but I get most of it."—*Ex.*

A BUSINESS CHANGE.—On Friday the partnership existing between B. C. Pentz and W. H. Swords, under the firm name of Pentz, photographer, was dissolved by mutual consent. Mr. Pentz having disposed of his interest in the photographic business to W. H. and George A. Swords, they still continue the business at the old stand, under the name of Swords Brothers.

REPORT of the Secretary of Photographic Society of India: An honorable commend for a series of landscapes was awarded to Charles E. Pancoast; also the society's silver medal to Robert S. Redfield, on the following, viz.: " Victuals and Drink," " Feeding Chickens," " At the Forge," See Saw," and " Patience." Both of the above-named gentlemen are members of the Photographic Society of Phila.

ED.

IN connection with our article in the March JOURNAL on " Tree Study," we would call the attention of our readers to two photogravures in the current number of *Sun and Shade*,—one a " Tree Study in Winter," the other " Far from the Madding Crowd. Especial attention is called to the exposed ramifications of the root growth in these giants of the forest, as shown in the latter plate. ED.

THOSE of the trade who act upon the wise principle of keeping their wares constantly under the notice of the increasing army of photographers, will naturally reap the benefit of their judicious enterprise.

DR. JOSEPH C. EGBERT, an enthusiasiastic and successful amateur photographer of the new suburban town of Wayne, in Delaware county, sends us several specimens of his photographic handiwork. One, an interior of the parish building of St. Mary's P. E. Church at Wayne, on the day of dedication, is especially good,—we may say perfect, and will no doubt be highly prized by such of the parishioners as were present on the occasion, and who may be fortunate enough to obtain one of the prints.

ED.

WE have just received word that the proprietors of the Hotel at Arrowhead Springs, San Bernardino, California, have provided a first-class dark room for the use of their guests.

DEVELOPERS FOR FLASHLIGHT NEGATIVES.—We learn from the *Wochenblatt* that Professor Eder, in his new book, " Photography by Magnesium Light," recommends the following developers for flash-light pictures :

1.—PYRO DEVELOPER.

A.—Sodium sulphite	100 grammes.
Pyro	14 "
Water	500 c.c.
Concentrated sulphuric acid	6 drops.
B.—Cryst. soda	50 grammes.
Water	500 c.c.

Just before use, not sooner, 20 c.c. of solution A and 20 c.c. of solution B are mixed with 20 c.c. of water.

2.—HYDROQUINONE DEVELOPER.

A.—Hydroquinone	10 grammes.
Sodium sulphite	40 "
Water	400 c.c.
B.—Potassium carbonate	20 grammes.
Water	20 "

Before development 20 c.c. of solution A are mixed with 20 c.c. of solution B. This developer can be used repeatedly, and it is recommended to add a small quantity of fresh developer, but not before the development has been nearly finished.

The Photographic News, March 14, 1890, presents an exhaustive article on Athanasius Kirchner and his discovery of the magic lantern. It is by the pen of Mr. James Mew, and is well worthy of a perusal by all photographic students. We are pleased to see the renewed interest taken in those long-forgotten pioneers in the field of optical science. At the same time we cannot refrain from calling attention to the fact that the AMERICAN JOURNAL OF PHOTOGRAPHY first photographically called attention to the discoveries and researches of Porta and Kirchner, and the debt which the photographic world owed to them for their discoveries. The matter will be found fully illustrated in the JOURNAL for October, 1889, under the head of " The Genesis of the Camera." The article was partially reprinted, with comments, in *Bolas' Review*.

BY one of those unaccountable metaphysical anomalies occasionally met with in this life, our esteemed brother of the paste and shears, in the March *Beacon*, reviews the Gutekunst Souvenir in almost the same words as we did in the February JOURNAL. If it were not for the motto at the head of his " editorial table," we should be inclined to think that it was not a mere case of similarity of thought of two persons a thousand miles apart, but that it was our own article worked over and used without giving the credit due the JOURNAL, wherein it first appeared. We ourselves know a good thing when we see it, and occasionally cull one out of the valued exchange in question ; but we always try to give credit where it is due, even if we elaborate or change some of the phraseology.

LITERARY AND BUSINESS NOTES.

OUR esteemed exchange from Amsterdam, the *Tijdschrift voor Photographie*, published by the "Helios" Association, now enters into the eighteenth year of its publication. We wish it continued success and prosperity. The current number, beside the proceedings of the local photographic society, a translation from the AMERICAN JOURNAL, and numerous photographic formulæ, contains, under the head of "Oorspronkelijke Medeelingen," an interesting contribution from C. H. Groote, in which he gives his method of transferring the gelatin film of an ordinary dry plate negative to a new plate. The illustration accompanying this number is exceedingly praiseworthy in execution and detail.

From the same country comes a new candidate for the favor of the photographic public, viz.: "Lux," "Tijdschrift tot bevordering der fotografie en aanverwante kunsten en wetenschappen." A fine portrait study accompanies the "Tijdschrift." The leading paper, an article on "Amateur en Professional," by "Philophoto," classifies the guild as follows, viz.:

Typus: Animalia Vertebrata.
Classa: Mammalia. Ordo: Bimana.
Genus: Homo. Species: Fotograficus.
Varietas I., Amateur. Varietas II., Professional.

This interesting contribution to Photographic literature must be read in the original to be duly appreciated. J. F. S.

TRAITÉ ENCYCLOPÉDIQUE DE PHOTOGRAPHIE, par Charles Fabre. Gauthier-Villars et Fils, Paris. Parts 6–8. The second volume of this work begins with a description of the laboratory processes employed in preparing the plate for the camera. The wet process is considered in minute detail, with the effects produced by variations in the constitution of the sensitizing baths and the developing solutions. Methods for the intensification and reduction of unsatisfactory negatives are described, and various formulæ for the preparation of varnishes are given.

A short chapter is devoted to the use of the wet collodion process in the field, and the processes that have been suggested and actually employed for preserving the sensibility of the wet collodion film. Chapter III. takes up the history of the dry collodion process, titles of articles being the resin process, bromo-collodion, albumenized collodion, and the tannin process. Full references are given in every case, and each chapter is followed by a bibliography of the subject. DR. GREEN.

AN exhaustive and well-digested article on Daguerre has lately been published in the New York *Daily Tribune*. It is by the pen of Mr. W. J. Lincoln Adams, Editor of the *Photographic Times*, and beside describing the proposed Daguerre Memorial, treats at length of how the discoverer worked out his process, the accident which led to his ultimate success, and the Daguerreotype of days gone by. The article is illustrated with two pronounced newspaper cuts of the discoverer as well as the proposed memorial.

BY courtesy of the Scovill Mfg. Co. we have received their latest publication, No. 32 of the Scoville Photographic Series, entitled "Practical Photo-Microscopy," by Andrew Pringle. The volume contains much practical information on the interesting subject indicated in the title. The information is conveyed in a clear, concise manner; all of the various departments, mechanical, optical, chemical, microscopic, and photographic, are all fully treated upon. The numerous illustrations by the phototype process of the various bacilli, spermatozoa, etc., must be seen to be appreciated. The work is a credit to the publishers as well as the writer, is well calculated to promote physiological research by photographic methods, and must prove of great value to the medical profession as well as the photographic student.

AT the meeting of the Academy of Natural Sciences on the 1st inst., at which we had the pleasure of being present, Theodore D. Rand, Esq., of Radnor, Penna., exhibited a number of mineral specimens with the oxhydrogen lantern. Specimens of mica from Jacob Swayne's quarry in Chester County, showed numerous included minerals such as magnetite, Göthite and quartz, besides some unknown crystals. Micas from Delaware County, Fairmount Park, West Philadelphia, etc., showed a variety of included crystals. One of the most brilliant specimens was of mica containing quartz from Amelia County, Va. Some of the quartz was in crystals and some in radiated masses, rotating with the rotation of the analyzer. There were also shown feldspar from Frankford, and from Mineral Hill, Delaware County, and other localtties, some enclosing minute hexagonal crystals of Göthite forming the gem "Sunstone."

Thin sections of some of the rocks around Philadelphia were exhibited, showing the various minerals of which the rocks are composed.

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1—3¼x4¼ English instantagraph, camera, lens, shutter and tripod	12 00
2—8x10 Novel Holders, each	2 50
1—4x5 Flammang revolving back Camera, lens and tripod, new; reduced from $37 to	25 00
1—17x20 American Optical Co.'s Double Swing Portrait Camera, Bonanza Holder, good as new	75 00
1—5x8 Blair View Camera, single swing	17 00
1—Climax Outfit, including chemicals, complete	3 50
1—5x8 Tourist Outfit, including 5x8 Tourist Camera Box, 2 Daisy Plate Holders, 1 Extension Tripod, and 1 Canvas Carrying Case, very little used. Price, new, $40.50, will sell for	30 00
1—10x12 Cone View Camera, Double Swing, new	52 80
1—5x8 Wet Plate Stereo Camera, 3 holders, case and tripod	25 00
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1—No. 9 11x14, Ross Portable Symmetrical Lens	60 00
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1—4x5 J. A. K. Single View Lens	2 00
1—Extra 4-4 Roettger Portrait Lens	15 00
1—2A Dallmeyer Lens	82 00
1—set ¼ Darlot Tubes	12 00
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1—⅓ size L. W. Krantz Portrait Lens	12 50
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1—½ size Darlot quick acting Portrait Lens, central stops .	18 00
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"SHALL I LET HER GO?"

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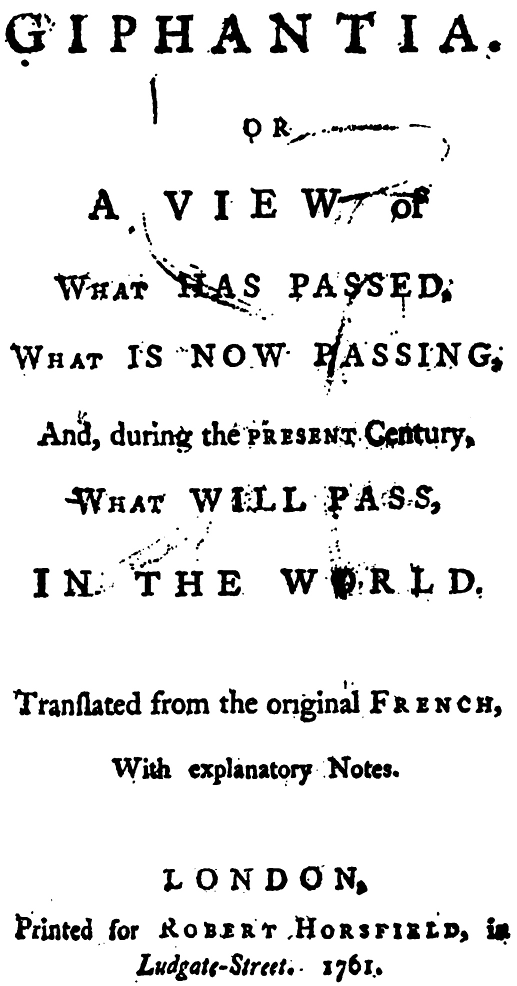
AMERICAN ACADEMY
MAY 27 1890
OF ARTS AND SCIENCES.

AMERICAN
JOURNAL OF PHOTOGRAPHY.
Published by THOS. H. McCOLLIN & CO.

VOL. XI. PHILADELPHIA, MAY, 1890. No. 5

THOMAS H. McCOLLIN, Managing Editor.

GIPHANTIA REDIVIVUS.



GIPHANTIA.

OR,

A VIEW of

WHAT HAS PASSED,

WHAT IS NOW PASSING;

And, during the PRESENT Century,

WHAT WILL PASS,

IN THE WORLD.

Tranſlated from the original FRENCH,

With explanatory Notes.

LONDON,

Printed for ROBERT HORSFIELD, in
Ludgate-Street. 1761.

RENEWED attention has lately been called in the leading photographic circles of London to "Giphantia," an exceedingly rare and curious book, originally published in France in 1760, and translated into English by an unknown translator, and published in London in the year 1761, the title of which edition is here reproduced in fac-simile. In this work will be found a singular forecast of photography; it may be said not only of the art in its present state, but possibly of the future.

Ever since the early wet-plate days this matter has every now and then cropped out and attracted the attention of the photographic press, to interest the credulous and puzzle the student, with the result that while many who have never seen the original denounced the whole statement as a fraud on a gullible public, others again, more conservative, but equally emphatic, published papers in the photographic journals giving strong reasons or statements questioning the antiquity of "Giphantia" or the extract in question.

"Giphantia" was again brought into notice at the February meeting of the Camera Club of London, when an extract from the book was read before the Club. The *Photographic News* in reporting the matter, however, was exceedingly cautious in its statements in relation to the matter, on account of the discredit which has on so many occasions been cast on the work,

At the March meeting of the Camera Club a copy of the English translation was produced and shown to the members. This induced the publishers of the *Photographic News* to make a thorough investigation of the subject. It was found that the British Museum Library contains three editions of the book, all, so far as antique appearances go, bearing external evidence of being old and genuine. The first of these, entitled "Giphantia," is in French, and bears the date 1760; it is anonymous, and purports to be published at "Babylon." The second is also in French, and is dated 1761, and purports to be published at La Hague by Daniel Monnier. The third is an English translation, with the title as here reproduced. The anonymous translator dedicates this edition, as was the custom in those days, to some well known female,—in this case an "Hon. Miss Ross." Some members of the London Camera Club hold to the opinion that still another edition was published at Cherbourg, France.

The authorities of the British Museum ascribe in their catalogue the authorship of the book to Tiphaigne de la Roche, and state that the two French editions, which are first mentioned in the preceding paragraph, were in reality published in Paris. Barbier's *Dictionnaire des Ouvrages Anonymes*, Vol. II., pp. 544, published in Paris, 1874, ascribes the authorship of "Giphantia" to Ch. Fr. Tiphaigne de la Roche, and gives the date of the book as 1760, thus fully recognizing its genuineness; and it is probable that on the authority of Barbier's book the name of Tiphaigne de la Roche was applied to the work in the British Museum catalogue of printed books. Vol. III. of the *Bibliotheca Britannica*, published in Edinburgh in 1824, also catalogues "Giphantia," so that the work was certainly in existence before the advent of the daguerreotype, collodion or gelatine processes.

So much for the *Photographic News*. As a matter of fact there can be no doubt whatever of the age or authenticity of the work. "The copy of "Giphantia" in the possession of the writer was brought to America prior to the Revolution, a fact which can be established beyond all peradventure,—certainly many years before Daguerre or Talbot were born. As to the work itself, outside of the part before mentioned, we have little to say, except that is it is one of those peculiar Utopian or idealistic works so common during the last century, in which the writer visits the visionary spheres which he describes under the guidance of some gentle spirit, shade, mentor or perfect. Giphantia was possibly patterned after "Telemachus" or Dante, without, however, the philosophy of the former or the poetry of the latter.

The author, Charles Tiphaigne de la Roche, was born at Montebourg in 1729, and died on the 12th of August, 1774. He was a doctor of medicine and a literary man, and chiefly made his mark in the world in the latter capacity. He took his degree in the University of Caen. His works are but little known. Most of them are of an idealistic nature, and but few of them are found outside of his native country. He however also published some scientific works; of the latter, his "Physical Observations on Agriculture, Plants and Minerals," published in 1765, is probably the best known. A short time ago 400 francs was asked for a copy of the first edition of "Giphantia."

Regarding the title the author writes that he found himself in a strange land, when his attendant spirit or perfect informs him that

> *"That ſolitude with which thou art ſo charmed, ſtand in the midſt of a tempestuous ocean of moving ſands; it is an Iſland ſurrounded with inacceſſible deſerts, which no mortal can paſs without ſupernatural aid. Its name is Giphantia. It was given to the elementary spirits the day before the Garden of Eden was allotad to 'parent of Mankind.'"*

The guiding spirit further says:

> *"Of all the countries in the world 'Giphantia' is the only one where nature ſtill preſerves her primitive vigor."*

There are but two copies of this curious work known to be in America, and on account of the great scarcity of this work, and its curious bearing upon the photography of the present date, we reproduce for the benefit of our readers the title-page, together with the two most important pages, in fac-simile, at the same time giving chapter XVII. in full. It will be noticed that the author here virtually foreshadows not alone the dry-plate photography of the present day, but perhaps also that goal for which we all strive, long, and hope;—photography in natural colors.

We now quote in full the remarkable chapter of this book which has often incited much discussion among photographic students.

CHAPTER XVII.

THE STORM.

> *"He conducted me into a hall of a middling ſize, and not much adorned, where I was ſtruck with a ſight that raised my*

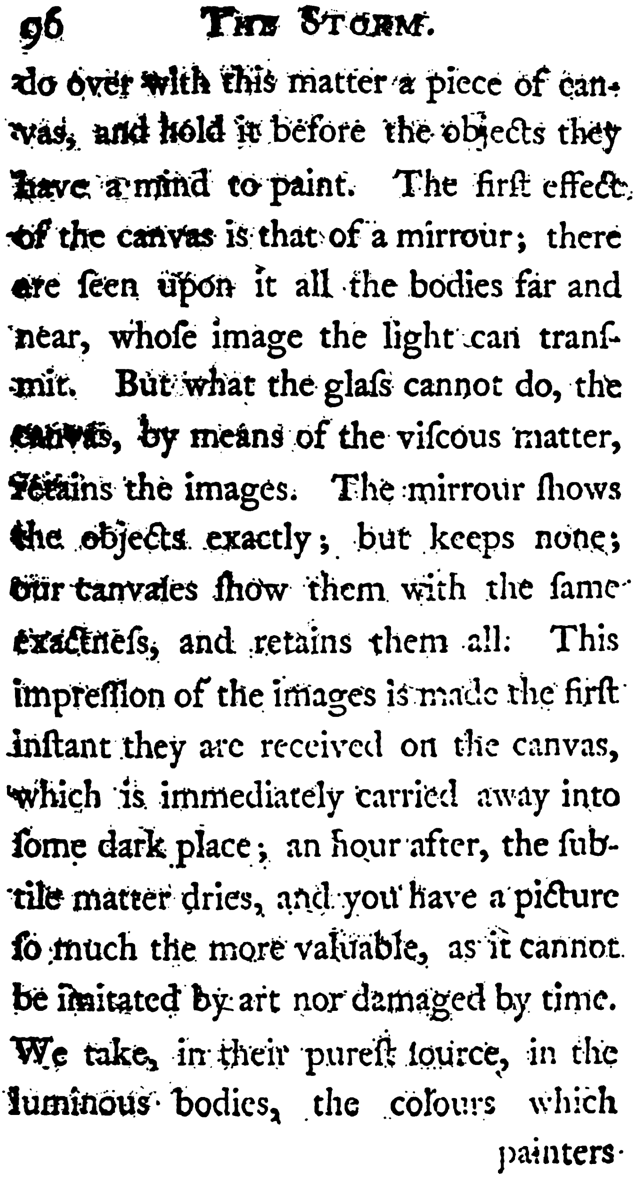
aſtonishment. I ſaw, out of a window, a ſea which ſeemed to me to be about a quarter of a mile diſtant. The air, full of clouds, transmitted only that pale light which forbodes a ſtorm; the raging ſea ran mountains high, and the ſhore was whitened with the foam of the billows which broke on the beach.

By what miracle (ſaid I to myself) has the air, ſerene a moment ago, been ſo ſuddenly obſcured? By what miracle do I ſee the ocean in the centre of Africa? Upon ſaying theſe words, I haſtily ran to convince my eye of ſo improbable a thing. But in trying to put my head out of the window, I knocked it againſt ſomething that felt like a wall. Stunned with the blow, and still more with ſo many myſteries, I drew back a few paces.

Thy hurry (ſaid the Perfect) occaſions thy miſtake. That window, that vaſt horizon, thoſe thick clouds, that raging ſea, are all but a picture.

From one aſtoniſhment I fell into another: I drew near with freſh haste: my eyes were still deceived, and my hand could hardly convince me that a picture should have cauſed ſuch an illuſion.

The elementary ſpirits (continued the Perfect) are not ſo able painters as naturaliſts; thou ſhalt judge by their way of working. Thou knoweſt that the rays of light, reflected from different bodies, make a picture and paint the bodies upon all poliſhed surfaces, on the retina of the eye, for inſtance, on water, on glass. The elementary ſpirits have ſtudied to fix theſe tranſient images: they have composed a moſt ſubtile matter, very viſcous, and propper to harden and dry, by the help of which a picture is made in the twinkle of an eye. They



96 THE STORM.

do over with this matter a piece of canvas, and hold it before the objects they have a mind to paint. The firſt effect of the canvas is that of a mirrour; there are ſeen upon it all the bodies far and near, whoſe image the light can tranſmit. But what the glaſs cannot do, the canvas, by means of the viſcous matter, retains the images. The mirrour ſhows the objects exactly; but keeps none; our canvaſes ſhow them with the ſame exactneſs, and retains them all. This impreſſion of the images is made the firſt inſtant they are received on the canvas, which is immediately carried away into ſome dark place; an hour after, the ſubtile matter dries, and you have a picture ſo much the more valuable, as it cannot be imitated by art nor damaged by time. We take, in their pureſt ſource, in the luminous bodies, the colours which

painters

painters extract from different materials, and which time never fails to alter. The juſtneſs of the deſign, the truth of the expreſſion, the gradation of the ſhades, the ſtronger or weaker ſtrokes, the rules of perſpective, all theſe we leave to nature, who, with a ſure and never-erring hand, draws upon our canvaſes images which deceive the eye and make reaſon to doubt, whether, what are called real objects, are not phantoms which impoſe upon the ſight, the hearing, the feeling and all the ſenſes at once.

The Prefect then entered into ſome phyſical diſcuſſions, firſt, on the nature of the glutinous ſubſtance which intercepted and retained the rays; ſecondly, upon the difficulties of preparing and uſing it; thirdly, upon the ſtruggle between the rays of light and the dried

> *ſubſtance ; three problems, which I propoſe to the naturaliſts of our days, and leave to their ſagacity.*
> *Meanwhile, I could not take off my eyes from the picture. A ſenſible ſpectator, who from the ſhore beholds a tempeſtuous ſea, ſuch images are equivalent to the things themselves.*

Perhaps some of our scientific or literary photographic students can shed some further light upon this interesting subject, and explain by what peculiar power this French savant was permitted to lift the veil of the future, and forecast the process of photography now so universal, which, when Giphantia was written a century and a quarter ago, was thought to be only a chimerical effusion of the vivid imagination of an anonymous writer, without anyone for a moment giving credence to the thought that the utopian statement would one day become an established fact, and that through the researches of two of their own countrymen, viz., Niepce and Daguerre.

Leopard, Pa., April, 1890. JULIUS F. SACHSE.

WANT OF DENSITY IN GELATINE NEGATIVES.

THE subjects of intensifying weak negatives and of reducing over-strong ones occupy an amount of space in our photographic journals that may well excite surprise; and the question might be asked whether it were a matter of such great difficulty to secure negatives of the proper density by the simple application of the developer.

We were not a little startled a few days ago when an operator of large experience put us the question how to secure density in gelatine negatives Before proceeding to give an answer, we inquired more closely into the matter, and learned that he had had considerable trouble in obtaining good printing density on plates of a first-class make. He also complained of solarization, or over-action in the high lights, if exposure sufficient to render detail in the shadows had been given. We could not inform ourselves with exactitude as to the relative rapidity of the plates, but from what was told to us, the sensitiveness must have been of a high grade.

With the above question to answer, then, we immediately spoke of intensifiers, such as mercury, Schlippe's salt, silver intensification, and other methods, but were met by the assertion that the desirable thing was a means of obtaining sufficient strength without resorting to these after-processes.

This brought about a discussion upon emulsion making, and the changes which take place in plates after leaving the drying-room and during the time that they are stored on the stock-dealer's shelves, or in the photographer's workroom. We at once expressed the opinion that the higher the sensitiveness of the plate, the greater would be the likelihood of having trouble in obtaining density by the first development alone. To confirm this statement, we gave the gentleman referred to the details of some of our experiments in emulsion making, in the course of which we had observed that the plates from a batch of emulsion the sensitiveness of which was not more than about three times that of wet collodion, gave any amount of density desired with a pyrogallic acid developer alone. We also told him of another batch of emulsion which, through an inadvertence upon our part, had been left exposed too long a time to the action of the heat, and the plates from which were all thin and weak. The image was perfect in these plates, and the sensitiveness far in advance of the previous batch, but the remarkable point was that density was always wanting no matter how the changes were rung on the timing and the development.

Every experimenter with gelatine emulsions and every professional plate-maker has doubtless met with this sort of thing. The commercial turning-out of large numbers of plates nearly uniform in sensitiveness, density, and other photographic good qualities, must rank as one of the triumphs of modern ingenuity and skill. And so far from finding fault with our modern dry plates, we rather congratulate the photographer of the present day that such good plates are obtainable, particularly when we remember how different samples of gelatine vary in character, and the nicety which must be observed in the making of emulsions.

Laying aside for the present the matter of any fault in the emulsion or plates, let us look at those means which are at the disposal of the photographer for the increasing of density. And first, as to the exposure given to the plate. It goes almost without saying that the timing must be suited to the subject and to the light admitted through the lens. Now, supposing that the plate has been overexposed from any cause, the image will appear very quickly when the developer is applied, and the darker portions of the picture, or in other words those representing the shadow portions of the original, will be seen to develop so rapidly that they soon overtake the high lights, and consequently, if the picture is to be saved at all, the plate must be quickly removed from the developer. All chemical action is thus checked; but the image will be weak and thin, because there has not been sufficient time for the developer to act upon the lights and build up the necessary density. Successful development is a process that cannot be hurried; some time being required for the proper development of the various gradations of tone, the high lights appearing first, and being followed by the darker parts. It is in these cases of overexposure that the value of the bromides as restrainers is seen. The action of the solution being slower, the pyro. has time given it to produce the desired opacity. Therefore, if we were about to develop a plate believed to have been overtimed, we should begin with a solution containing a full amount of pyro., a little more than the usual amount of bromide, and rather less than the ordinary amount of alkali. If, in spite of this, the image came too quickly, we should immediately take the plate out and wash it thoroughly under the tap, then lay it in a weak solution of bromide, say five grains to the ounce, and after giving time to let the restrainer get well worked into the film, put it back into the developer and finish. If this still failed, and more plates had to be developed which had received the same excessive timing, we should begin by soaking them in the weak bromide wash, and then transfer them to a developer in which the alkali had been considerably reduced while the quantity of pyro. remained the same or was slightly increased.

Modifying the developer in this manner will at times help things a good deal. But, as we said before, the great point is to give proper timing to the plate. Now this simple piece of advice is sometimes very difficult to act upon, but we may here reiterate what we have so often said in regard to having a large stock of plates *of one make*, and using, if possible, one or two lenses only, with one or two standard stops that will give the necessary definition. It stands to reason that different subjects present great differences in actinism, and that calculations must be made accordingly. Now if various lenses and various sizes of stops be employed, without especially good reason, the elements of uncertainty become so manifold and so increased that accurately exposed plates can hardly be hoped for.

The practice of making large numbers of instantaneous exposures upon all sorts of subjects, and trusting to the developer to make uniform results, is wonderfully successful on the whole, when we come to consider the facts just mentioned. The exposures given are of course the same for everything, and nothing but experience in development, together with judicious modifying of the solution, will produce approximation to uniformity, even on plates or paper of the same make.

The advice we here give is the best that circumstances enable us to, and it should not be forgotten that different brands of plates do not behave in quite the same manner under the same treatment. We have often thought that the working of photography now-a-days resembles an attempt of a medical man to treat patients with "patent medicines," the composition of which is not known to him. Considering that no photographer makes his own plates, and that not a few use the ready-made developers obtained from the stock-dealers, and that the picture-making is thus done with "unknown quantities," so to speak, it is rather to be wondered at that results are not less uniform in character, and worse in all respects than they really are. We will just add, in concluding, that anyone troubled with a persistent want of density in his negatives which resists the modifications in timing and developing as mentioned, should change his plates and ask for a brand of lower sensitiveness.

ELLERSLIE WALLACE.

COMPOSITE PHOTOGRAPHY AGAIN.

WHEN the claims of composite photography were first announced several years ago, it was confidently hoped by many that the system would really be developed into something of practical value. Apart from some attempts to combine historical portraits, and to identify signatures, however, nothing of importance was really accomplished, and a small amount of fun and ridicule was poked at the idea and its applications, and it has been allowed to drift into obscurity.

Recently, however, interest has been again revived in the subject, and a more critical and intelligent study of the possibilities of composite photography within reasonable limits has induced those who are in the habit of using scientific methods in a scientific manner to revise what may prove to have been a somewhat hasty judgment.

In order to obtain results which are to have any value, the same care as to accuracy and precision must be exercised when using the camera for this purpose, that would be employed, for example, in making an astronomical observation. M. Batut, in his recent experiments, has shown very clearly how composite photography may be tested, and the reliability of the results obtained by its use verified. By constructing a series of geometrical diagrams, twelve in number, each diagram containing a different figure, and all being so drawn that their combination should produce certain definite results, and then making a composite photograph of these diagrams by giving twelve successive exposures on one plate, he was able to secure a combination diagram of the most instructive character. Certain lines in each diagram were so placed as to form sides of a triangle in the composite photograph, while the other lines were so grouped about these as to form a symmetrical geometrical combination. The lines forming the sides of the triangle each appeared in four of the twelve diagrams, while the other lines appeared only once in each card, so that the sides of the triangular figure each had four impressions upon the one plate, and the other lines gave but one impression each.

The results of these experiments showed that whatever the order of exposure, the single impressions were all of the same intensity, while the lines which had four impressions came out brilliantly.

A variety of exposures gave always the same result, and it was impossible to determine from the appearance of the composite the order of the exposures. The most important point to be observed is the matter of absolute uniformity in timing. M. Batut lays especial emphasis upon the desirability of making the exposures automatically of uniform length, and also upon the desirability of making a composite from a large number of very brief exposures rather than from a few of longer duration if true average results are to be expected.

There are some other points to be considered as well in discussing this subject. The slightest increase in the brilliancy of the illumination of any exposure would undoubtedly cause that image to have a predominating influence in the composite picture, a point which would only be modified but not eliminated by making the composite consist of a very large number of very short exposures. When these conditions are observed, and the proper class of subjects for a composite photograph selected, there is no reason why the method should not have a permanent scientific value.

The question may here be asked: "What is meant by the proper class of subjects?"

The favorite subject for a composite photograph is the human face, and when due precautions are exercised to give each of the single pictures exactly the same share in production of the combination it is undoubtedly *the* class to be studied.

When the result is obtained by copying a number of previously taken portraits it will be evident, however, that if any one of the prints is deeper in tone, or of more actinic color, it will have an undue influence upon the whole combination.

The use of the method for the comparison of a number of signatures presumably made by the same hand, is also a perfectly legitimate and scientific use of the method, and for geometrical figures, and possibly for the comparison of fractured specimens of materials from the testing machine, it may possess important advantages.

As an example both of the unscientific use of the method, and of an unsuitable choice of a subject, a brief anecdote may serve.

A gentleman learning that a friend was about to visit the town of his birth, and being desirous of securing photographs of the surroundings of his early childhood, furnished the traveler with a Kodak, and requested him to make exposures upon the various buildings and interesting places, promising a set of prints for his trouble. The latter quite willingly went through the performance of pulling the string and pressing the button, keeping a careful record of the places, but the development of the film revealed ninety-nine blanks, and one composite (?) of one hundred subjects. It is hardly necessary to say that the home of one's childhood is scarcely a fit subject for composite photographs.

HENRY HARRISON SUPLEE.

A FORTUNATE AMATEUR.

WE see by the foreign papers that our fellow amateur and photographic cousin, Prince Emanuel Philibert Victor Eugene Albert Genova Joseph Marie, Duc des Pouilles et Aosta, has lately inherited from his mother a fortune computed at over $6,000,000, while each of his two brothers only received half that sum. We have been given to understand from seemingly trustworthy sources that this evidence of maternal partiality is entirely due to the Duke's success in the photographic field, our noble amateur surpassing even the most renowned Italian professionals in the portraiture of his august mother, to say nothing of the numerous genre studies, in which the Lares and Penates, so dear to his mother's heart, prominently figured. In addition to his fortune, the duke is a handsome man, with perfectly cut features, tall and muscular in build, and in the event of the death of the weak and delicate Crown Prince, would become the heir to the Italian throne. It is also stated that our photographic cousin contemplates a visit to these shores in the near future, possibly during the coming summer, mainly for the purpose of phographing some of our American scenery. On this occasion he will travel incognito, and be accompanied by two favorite and trusted Soluzione, viz.: the Sviluppatori di Acipi-Rogallico, and Iposolfito di Idrochinon, in place of Signor Feroxolita, who formerly enjoyed the confidence of the Duke, but having lately fallen from popular favor in Italy, as a matter of course will not accompany the ducal party to America. Personally we regret this fact, as we have enjoyed a long acquaintance with the Signor, and we know that his retirement is due to no shortcomings of his own, but is due to foreign interference in Italian development on the part of certain German merchants and bankers in Italy, who have been forcing a favorite of their own into popular notice, one Sig. Metabisulfito di Iconegeno, who, notwithstanding his Italian name, is of Anglo-German parentage. So far, however, without success;—the friends of the old favorite are outspoken in their convictions, and it is even mooted that the newcomer is merely a parvenu, who has succeeded in imposing himself upon the German scientists and others, without having any claim to the exalted rank which is so persistently claimed or him by his followers or dupes.

However, with this discussion we fortunately have nothing to do. We will merely say that when the photographic party arrives on these shores we will extend to them a hearty Yankee welcome, and give them all the aid and assistance in our power. If they will call on us, we are willing to exchange references with him, offer him the use of our dark room, and extend the civilities of the Quaker City to our photographic cousin from the far-off land of Art and Spaghetti. ADOLPHÉ.

ETIQUETTE OF PHOTOGRAPHS.—Niece: "Aunty dear, the young artist, Herr Schmidt, again entreated me at the ball last evening to lend him my photograph, which, he says, will be of inestimable value to him in painting his new picture. He promises to return it as soon as the picture is finished. May I give it to him?" Aunt: "Well, I think it will be all right if you enclose with it a picture of your mother, or some other elderly person; to send your picture alone would be a terrible breach of etiquette."

PHOTOGRAPHING NATURAL COLORS.

OF late the photographic as well as the secular press has been teeming with accounts of the alleged discovery, by one Professor Veress, of photographing and printing natural colors. The article in question being based on an account written by the Vienna correspondent of the London *Standard*, and published in the issue of that journal of April 2d, we reprint an extract giving the most important part of the correspondent's letter, giving the process, viz.:

" The sensitive preparation is a silver chloride emulsion in collodion, or in gelatine, and the solution being prepared in a peculiar way, which is the inventor's secret, it is poured upon either the glass or the paper, where it soon takes a brownish red color. The plate is put into a copying frame and exposed to the rays from a transparent colored drawing, of which the negative picture is soon visible, the dark parts appearing of course in white. The exposure has to last in the case of glass negatives two to three hours, and in the case of paper at least three days, as the colors come out very slowly, but the picture having been fixed in an alkaline bath the colors become brighter and more intense. The process in the camera would require an exposure lasting several weeks, but even the ordinary process will be largely reduced if some experiments on which Herr Veress is at present engaged succeed as well as he hopes, and according to the latest information he has already so changed his original system as greatly to lessen the time of exposure, especially for the paper negatives."

When the matter came to the notice of the editor of the *Deutsch Photographen-Zeitung* he sent a letter to the alleged discoverer, Herr Veress, in Klausenburg, Transylvania, who formerly published the *Fényképészéti Lapok*, asking him for further particulars of his discovery. In due time the following reply was received :

" That I have succeeded, after much trouble and sacrifices, in chemically fixing the natural colors is correct. However, until now my colored pictures have only been produced in the copying frame from imitations of stained glass or transparent pictures. Therefore, for an actual impression on a sensitive plate with lens and camera the process is not yet available. To properly utilize this extraordinarily beautiful and interesting process it must be combined with the camera. The possibility of this is at hand, as the dicovered path is sure; the fixation of the colors has succeeded. The whole secret in the way of success is to make the films or coating still more sensitive. But herein lies for me the difficulty, as I am not in a condition to bear any more sacrifices, it is impossible for me, without aid or assistance, to experiment any further. I am now waiting to see what the State may perhaps do for me in this matter. I am exceedingly sorry that I cannot send you any specimens, as all the proofs in my possession I have given to Herr Eugen v. Gothard. He has since given several specimens to Professor Eder, who has mentioned them in a public address. It is seven months since I have been able to do any experimenting, and for the last three months I have had to cease considering myself a photographer, notwithstanding that for almost forty years I have been a devotee to the art, and spent much time and study on it. Now, alas! here I stand with my invention, without being able to carry it out any further. That I have not written to you, dear sir, about the invention is due to my bad penmanship and the difficulty that I have with the German language. Resp., (Signed) FRANZ VERESS."

The *Zeitung* makes no comment, except to state that as soon as any further communications are received they will place them before their readers.

Our readers may draw their own conclusions from the above letter. Veress may have discovered the true principle of fixing the natural colors, so earnestly sought for. Time alone will tell this.

Since writing the above, just on the eve of our going to press, we have received the following communication from our friend Franz Peress, in Kolozsvar. We present it to our readers in full. In addition we have received a number of specimens of his experiments. Lack of time prevents us from giving any extensive description or making comments at the present writing, except to state that the specimens will be shown at the next meeting of the Philadelphia Photographic Society. In the meantime they will be on exhibition at the publication office of the JOURNAL, where they may be examined by svch of our readers as are interested in the subject.

To the Editor of the AMERICAN JOURNAL OF PHOTOGRAPHY, *Philadelphia.*

DEAR SIR:—Please accept my thanks, dear sir, for your kindness as to continue sending your journal to me, although you knew that my journal, the *Fényképészeti Lapok*, had ceased to appear. I assure you, it has been always an enjoyment for me to receive your paper, so excellently edited, and I would truly be very glad if the little sortiment of my photos upon paper and glass in natural colors I send you by the same mail, would prove you how much I esteem the favor you do me. Please, dear sir, to select some of the photos, and deliver it as well as the enclosure to Mr. Carey Lee, his iodging being unknown to me. I shall be very thankful to you, because I want to say him myself, how much I value his arduous labors. He goes quite another way than I do, but if he be ready to unite his experience with mine, I am persuaded we would triumph in a very short time. You see, dear sir, that I succeeded to fix the colors; its for the preparation upon glass, it is in gelatine, upon paper in collodion. The exposusure of the photos upon glass was of 3-5 hours, upon paper 2-3 days. Since I succeeded to make such photos upon smooth plates of thickened [condensed] petroleum in 10-30 minutes.

The plate is put into a copying-frame, and exposed from a transparent colored drawing. My aim is now to lessen the time of exposure as much as to enable me to work with the camera, to photograph moving objects, which I could not do 'till now, because for camera work I wanted 2-3 weeks.

Dear sir, believe me to be very respectfully yours,

Kolozsvar [Klausenburg] Hungary. FRANCIS DE VERESS.

PHOTOGRAPHY appears to great advantage in connection with some experiments made on the Continent with smokeless powder. To show the difference between a volley fired with the ordinary powder, and the new variety, photographs were taken at the moment the commander gave the order to "fire." In the case of the first-named, a thick, black cloud is represented, through which the gunners are barely perceptible, while, in the second case, only a thin haze is noticeable. The *Archiv* in No. 644, reproduces two of the photographs, of which we will have more to say in our next number.

EXPERIMENTS OF PRACTICAL PHOTOGRAPHERS.—II.

Translated from the "*Photographisches Archiv*" expressly for the AMERICAN JOURNAL OF PHOTOGRAPHY.

C. BAUMANN, Hofphotograph Dortmund.

Developer.—Eikonogen.

Advantages.—Cleanliness and clearness of plates, wealth of fine tones, combined with strong high lights, when extra rapid plates are used.

Composition.—The usual formula.

A.

Sulphite soda	200 g.
Water	3 liters.
Eikonogen (dissolved warm)	50 g.

B.

Cryst. soda	150 g.
Water	1 liter.

For use, 3 parts A., 1 part B.

In the fixing bath no sulphite of soda is used, as it is superfluous, and in my experience the plates are destroyed by leaving them in a bath of that kind any length of time.

Vorbad.—None.

J. H. BRASCHOSS, Cöln.

Developer.—Eikonogen.

Advantages.—Saving thereby half of the exposure. Solution can be used repeatedly, is lower in price than all others, and is absolutely non-poisonous.

Composition:

I.

Eikonogen	50 g.
Sulphite soda	200 g.
Water	3000 g.

II.

Soda	300 g.
Water	2000 g.

Vorbad.—None.

JULIUS DÖRSTLING, Hofphotogr., Eisenberg i. A.

Developer.—Until within three months ferrous-oxalate, since then with preference eikonogen.

Advantages.—Shorter exposures, detail in shadows and high lights, and transparency at the same time. Strong negatives, therefore more rapid printers; greater permanency.

Composition.—Dissolve 200 g. sulphite soda in 2½ litre rainwater, then rub up 50 g. eikonogen in a mortar, and pour into an earthen pot in which there is half a liter of hot water. After both are dissolved pour the hot solution into the 2½ liters of soda, then shake up well.

No. 2.—Dissolve 150 g. soda cyst. in one litre of water. Three parts No. 1, one part 2.

Vorbad.—None.

Otto Faltz, in Eberswalde,

Developer.—Eikonogen.

Advantages.—Quick and active action. The picture develops brilliant and complete detail in the deepest shadows. The developer can be used repeatedly.

Composition:

Water	600 g.
Sulphite soda	100 g.
Potash, C.P	40 g.
Eikonogen	20 g.

Dissolve and boil in a Florence flask; use when cold.

Vorbad—None.

W. Gilles, Unna.

Developer.—Eikonogen, since six months ago, with good results.

Advantages.—Detail in the shadows; much quicker printing negatives than oxalate; shorter exposure; shading of certain portions of the negative in printing lessened.

Composition:

I.

Distilled water	1500 g.
Sulphite soda	100 g.
Eikonogen	25 g.

II.

Distilled water	1000 g.
Ordinary soda	150 g.

For use, three parts No. 1, one part No. 2. Both solutions keep; No. 1 made in December was without change in February.

Vorbad.—None.

F. Hundt, suc. to Hülswidt-Münster i. W.

Developer.—Eikonogen.

Advantages.—The enormous reduction property of the agent, with a finer silver grain that in our experience is attainable with any other developer. We use extra rapid plates exclusively, which with pyro. and oxalate give a very coarse grain. With eikonogen, however, the grain is so fine as not to be perceptible. Shorter exposures than with any other developer; cleanliness.

Composition:

I.

Sulphite soda	200
Water	3000
Eikonogen	50

II.

Carb. soda	150
Water	1000

For use, three parts 1 and one part 2, bromide 1-2 drop 1 : 10. When the high lights stand out strong pour off the developer and finish with fresh (without bromide.) In this manner we obtain exceedingly brilliant harmonious negatives.

Vorbad.—None.

THEODORE SCHAFGANS, Jr. Bonn.

Developer.—Until a few months ago, oxalate ; now I have adopted eikonogen, and use it exclusively.

Advantages.—With eikonogen the film remains wonderfully clean and clear, the plate shows greater plastik, and beautiful high lights. With dexterous use of old developer over-exposed plates may be brought to the proper density, and per contra, greatly under-exposed plates may be saved by use of the strong developer.

Composition.—With normal and properly exposed plates I use the developer exactly according to the formulæ of Dr. Krugener. With doubtful exposures I commence with old developer, and, according to circumstances, finish with fresh developer.

The development must only be done by a weak red light, or the plates are apt to fog and the fine lights disappear.

I have also found that the two solutions must be kept separate until just before use. Also that if two solutions are mixed in large quantities the developer loses its power after two days.

Vorbad.—My experiments prove that they do not hasten development.

E. LASSEN, Ratzeburg.

Developer.—Eikonogen.

Advantages.—Since six months ago I work with eikonogen, and am well satisfied. We obtain brilliant negatives, high lights, middle-tones, and clearness of shadows, with rich detail. Time of exposure is shortened one-third in relation to oxalate, also cheapness.

Composition :

A.

Distilled water, boiled	600 g.
Sulphite soda	100 g.
Potash	40 g.
Eikonogen	20 g.

When the water boils, dissolve first sulphite, then potash, and lastly eikonogen.

Vorbad.—None.

C. WESTENDARP, Cöln.

Developer.—Eikonogen.

Advantages.—Surety, simplicity, cheapness.

Composition.—I use the formula of the manufacturer. When developing, however, I take half old developer; the plates remain clearer, and any desired grade o strength can be obtained thereby.

Vorbad.—None.

WM. BERGMANN, Moers.

Developer.—Ferrous oxalate.

Advantages.—Surety, simplicity, cheapness.

Composition :

A.

Iron	1 : 3

B.

Oxalate potash	1 : 3

One part A, three parts B.

Vorbad.—With extremely short exposures, hyposulphite soda 1 : 2000.

AUG. CLASSENS, Aachen.

Developer.—Oxalate.

Advantages.—The constancy.

Composition.—In summer, 1:5 ; exposure 1:1½ seconds. Winter, 1-5; exposure 2-3 seconds.

Vorbad.—With drop shutter exposures of ⅙-¼ seconds, a few drops dilute hypo in developer.

F. COURTE, Püttlingen.

Developer.—Iron oxalate.

Advantages.—Simplicity and constant properties of development. Adaptable to all kinds of exposure. Cheapness.

Composition.—Saturated solution of oxalate of potash.

A.

Iron	30 g.
Water	100 ccm.

A few drops 2 per cent. solution tartaric acid.

B.

Old developer with a few drops of above tartaric acid solution added.

For use in normal exposures:

Iron (A)	1 part.
Old developer (B)	1 part.
Saturated solution oxalate	2 parts.

For over-exposed plates:

Iron (A)	1 part.
Old developer (B)	2 parts.

For very short exposures:

Iron	1 part.
Oxalate	3 parts.

Vorbad.—None.

JOH. FREUND, Schlüchtron.

Developer.—Oxalate of Potash and Iron.

Advantages.—Simple manipulation and sure results.

Composition:

A.

Oxalate potash	30 parts.
Distilled water	100 parts.

B.

Iron vitriol	30 parts.
Distilled water	90 parts.

Just before use: 3 parts A and 1 part B, with a few drops bromide potassium, 1-10.

Vorbad.—None.

H. HABERLANDT, Berlin.

Developer.—After all developers have been tried, I have left all, even Eikonogen, and return to iron developer.

Advantages.—Iron acts quicker than Eikonogen. I would prefer pyro on account of its finer detail if I only had portrait plates to develope; further, iron and pyro—unless through carelessness—never fog, while Eikonogen easily does. This, however, may be the fault of the unequal quality of even the best sulphite.

Composition:

I.

Oxalate potash	300
Water	1000

II.

Iron	300
Water	1000

One part iron to three parts oxalate.

I make both solutions with hot water, and filter. In No. II., I pour two drops concentrated sulphuric acid to every 100 g. hot water, then dissolve the iron and filter.

Vorbad.—One part hypo to 8000 to 10,000 parts water, only with drop-shutter exposures.

LOUIS HERMESTROFF, Metz.

Developer.—Iron Oxalate

Composition:

Potash	1-3½.
Iron	1-3.

Three parts potash and one part iron, both dissolved in hot water.

Vorbad.—With drop-shutter exposures, hypo 1-1000.

J. F. KLINGER, Braunau ob. Oesterreich.

Developer.—Iron Oxalate

Advantages.—The always even results with Monkhoven dry plates, with fine modulation, close grain, and high lights.

Composition:

A.

Neutral oxal. potash	300 g.
Distilled water	1000 g.

B.

Iron vitriol	300 g.
Distilled water	1000 g.

Three to four drops sulphuric acid.

For use, 4 parts potash, 1 part iron. Reduction if necessary.

Hypo	200 g.
Water	1000 g.
Red Pruss.	1-5.

Vorbad.—Children with advantage:

Water	3000 g.
Hypo	1 g.
Citric acid	3 g.

A. zur Mühlen, Magdeburg.

Developer.—Oxalate.

Advantages.—With Vorbad, soft and clear shadows.

Composition.—Oxalate 1-4, Iron 1-3, For use, 1 part iron, 3 parts oxalate.

Vorbad.—Hypo.

Alfr. Person, Lahr.

Developer.—Oxalate.

Advantages.—Clear plates. Grey color and rapid printers.

Composition:

I.

Oxalate	300 g.
Water	1000 g.

II.

Iron	100 g.
Water	3000 g.

For use I. three parts, II. one part. Consider the developer the best. Have developed shortest drop-shutter exposures with success.

Vorbad.—None.

Prof. C. C. Schirm, Berlin.

Developer.—Ferrous oxalate, with vorbad (250 water, 1 part hypo), and an addition of weak solution of hypo and bromide to developer.

Advantages.--Evenness in appearance of lights and shadows, and the correct relation to each other, gradation and beauty in detail.

Composition.—

A.

Oxalate of potash	1
Water	3

B.

Iron vitrol	1
Water	4

One part B to three parts A with the addition of one drop of solution.

Hypo	0, 5.
Bromide	3g.
Water	100g.

to every 10 c.cm. developer. Also two-thirds old developer to one-third fresh.

Vorbad.—One hypo to 2500 water.

L. Schmidt, Frieberg.

Developer.—Iron Oxalate.

Advantages.—Works not too slow, gives clear shadows with all detail and high lights, when suitable dry plates are used.

Composition:

A.

Oxalate potash, neutral	300 g.
Distilled water	1000g.

B.

Sulph. Iron	100 g.
Distilled water	300 g.

Sulph. acid, c. p. two to three drops immediately before use, three parts A to one B, with underexposed plates, to every 100 g. developer one to two drops hypo 1:100. Over exposure I regulate the development with the addition of bromide 1.10, drop by drop.

Vorbad.—None.

[Note.—Have tried Eikonogen in various ways, but prefer Iron Oxalate to all others. I however think the time will come before long that with different combinations the Eikonogen developer will become the best that now exists.

L. STUTING, Hofphotograph, Barmen.

Developer.—Oxalate of potash with iron.

Advantages.—I have found that it works clearer and stronger than all others.

Composition.—Saturated solutions oxalate and iron, 3 parts of ammonia to 1 part of iron.

Vorbad.—With drop shutter and interiors 1 part hypo, 2000 water, to which add a few drops of 10 per cent. bi-chloride mercury.

GEORGE MULLER, Eltville.

Developer.—During the last six a prepared hydrochinone developer, which has kept well and remains clear. I use it fresh for instantaneous, and old for time exposures.

Advantages.—Softness combined with fine lights and especially fine detail in shadows—good coloring of negatives.

Composition:

A.

Water	400 g.
Sulphite soda	45 g.

B.

Water	450 g.
Soda	45 g.
Potash	45 g.
Sulphite soda	45 g.

For a plate 13 x 18 cm. take A, 40; B, 5; 10 drops bromide. After these are in the developing glass add just before use a small thimble full of dry pyro.

Vorbad.—None.

HUBERT KOCH, Kevelaer.

Developer.—Pyrogallic acid.

Advantages.—It gives strong negatives with soft modulation, develops strong and quick. Negatives are easy printers on account of the bluish color of plates, with extreme cleanliness. Excellent results can be obtained.

Composition:

A.

Water	500 g.
Sulphite soda	100 g.

10 drops sulphuric acid.

B.

Soda	50 g.
Water	500 g.

Before use—4 parts water, 3 parts A to 3 parts B. (Note—pyro not given.—*Trans.*)

Sulphite of soda added to fixing bath.

Vorbad.—None.

These replies will suffice to show the general trend of the German portrait artists. We find that the publishers of the *Photographisches Archiv* sent out a total of one hundred and forty-five queries throughout Germany and Austria-Hungary. Eighty replies were received, forty-eight of which have been reproduced in these columns for the benefit of our readers—both professional and amateur. From the great stretch of territory covered by these responses they may be accepted as fair representatives of the whole body of photographers who are scattered throughout the Fatherland. The result arrived at shows that ferrous oxalate is still the most generally used agent in the development—more than one-half (44-80ths) still adhere to the old stand-by; twenty-five per cent. (20-80ths) have become converts to the latest candidate for photographic favor, viz.: eikonogen. Next comes hydrochinon or fifteen per cent. (12-80th), and finally pyro (8-80th), or 10 per cent. of the whole number of replies received.

In analyzing the total replies we find that in the advantages claimed for the ferrous oxalate seventeen claim simplicity and surety, nine claim equality of work, nine claim capabilities of modulation, seven claim clearness of negatives, seven claim rapidity of development, seven claim cheapness of price, three claim cleanliness, two claim greater latitude of exposure, two claim value of copying properties.

Of those in favor of eikonogen: thirteen claim that the new developer is superior to all others in producing soft and clear, yet at the same time strong negatives, ten claim that the time of exposure is much shortened, eight claim greater detail in the shadows, seven claim rapidity of work, seven claim brilliant middle tones and high lights, four claim advantages of repeated use, two claim negatives that are easy printers and cleanliness in development.

Hydrochinon: five claim keeping qualities of developer, three claim soft and strong negatives and convenient for application, three claim surety of work, two claim fine modulations.

Fyrogallic acid: four claim superior brilliancy and detail in negative, with good color for printing, further, great latitude of exposure, that it keeps well in separate solutions and acts quickly. The developer, however, requires great cleanliness in all manipulations.

As to the vorbad, it is apparent that with the use of eikonogen and pyro it is unnecessary, with hydrechinon only occasionally, while with ferrous oxalate it is requisite in half the normal cases, while it is always required with drop shutter exposures on in cloudy weather, the usual formula is hypo in a very dilute solution 1 to 1000 to 10,000, and occasionally with the addition of a few drops of solution bichloride mercury.

The editor of the *Archiv* closes the subject with the statement that although they make no pretension to completeness, they are yet convinced that the imparted information of practical experience will prove of great service to the craft in general, giving many valuable hints and points to the professional as well as the intelligent amateur.

JULIUS F. SACHSE.

THE PHOTOGRAPHIC SOCIETY OF PHILADELPHIA.

A STATED MEETING was held Wednesday evening, May 7th, 1890, the President, Mr. John G. Bullock, in the chair.

The Secretary reported the receipt of an invitation from the New York Camera Club to an Exhibition of the Work of Members, April 14th to 19th; also, the 81st, 82d, and 83d Annual Reports of the Pennsylvania Academy of the Fine Arts, and from the Liverpool Amateur Photographic Association a prospectus of an International Photographic Exhibition to be held March 6th to April 4th, 1891.

The Lantern Slide Committee reported that the slides showed at the April Conversational Meeting were those of the New Orleans Camera Club; slides also being shown by Dr. C. L. Mitchell and Messrs. Carbutt, Dillon, Stirling, Cheyney, and Rosengarten. A communication was also read from the American Lantern Slide Interchange, announcing that the Directors had elected Mr. George Bullock, of Cincinnati, Manager, and William H. Rau, of Philadelphia, and F. C. Beach, of New York, Assistant Managers for the season of 1890 and 1891.

The Committee appointed to prepare a Memorial of the late President of the Society, Mr. Frederick Graff, reported the following:

Perhaps one of the greatest sources of consolation to those who are called upon to mourn the loss of a friend and leader is the review of his past life as connected with themselves and the interests over which he presided, particularly when those recollections fill us with love, admiration, and respect for the character of our lost friend; we think this will be found preëminently the case in regard to our late lamented President Frederic Graff. We have been accustomed to see him in our midst for so long a time, presiding over our councils, encouraging us by his example and advice, exciting our zeal in the race by his own untiring interest in our work, and his great desire that our noble art should be more than a casual amusement for the passing hour. His own love for it was genuine:—amongst the very first to take it up as an amateur, and to apply to it all the energy and resources of his well trained mind, his interest never flagged, nor did his enthusiasm diminish during his life. We find his name attached to the call for the preliminary meeting, October 19th, 1862, to discuss the feasibility of forming a Photographic Society. At this meeting he was appointed chairman, thus actually presiding over the very birth of the Society. Those of us (now few indeed) who were present at that meeting cannot fail to recall the earnest words in which he urged the necessity of organized action amongst those interested in photography. We were then a scattered few, groping in Cimmerian darkness that few of those who now enjoy the full glare of the photographic noonday can realize, each one experimenting for himself, wasting much precious time in arriving at results that some one else had forestalled him in, whilst he himself was able to supply information as much needed by others. Photographic literature was very limited and inaccessible, and many of the materials used had to be prepared by the operator himself if he desired any certainty in their results; thus it was that we felt the great need of co-operation and opportunity for the interchange of ideas. At the first regular meeting of the Society, held November, 1862, he was elected Vice-President, which position he occupied until the year 1868, when he was elected President, and continued so until 1870, when his duties as head of the Water Department of the city compelled him for a time to retire from official connection with the Society, but he was always present at its meetings, and his interest in its welfare never ceased. His work as Chairman of the Photographic Department of the Sanitary Fair, held in the year 1864, for the aid of our suffering wounded soldiers, showed how eareest was his desire to succor those who were suffering in their country's cause, and the large returns made by his department are the best proofs of his wise and energetic administration. Again, in 1886, we find him at our head, and he retained the office of President of our Society until his death. On the occasion of his assuming the chair at his election in 1886, after reviewing the advance made in photography during the last twenty-three years (the Society at that time being so long in existence), he used the following words, showing how fully he believed in the future advance of the art: "And yet we look for more,—what shall it be? Who can tell what is to be the future of our favorite hobby,—how far will the next twenty-three years of this Society see us in advance? We now make pictures upon a paper supported film, and develop them into beautiful negatives; may we not hope to have the finished positive impressed in the camera without further development, even then in colors." These words, taken in connection with the recent discoveries made both in this country and in Europe, seem almost prophetic. The Society having now largely increased in numbers, and from the few who assembled for mutual counsel and advice, where formal rules and regulations were not needed, he at once began to urge the importance of a broader and more useful existence, commensurate with the position we should hold in the photographic world. He solicited the members to prepare papers to be read at the meetings of the Society and afterwards discussed. He was always first to draw its attention to any advance in the art, and to his energy and foresight we are in a great measure indebted for our flourishing condition and the position we occupy. The social side of his character was not less remarkable. He was always ready to assist with his advice and counsel those standing in need, and his reassuring words have cheered many a fainting heart. Well does one of your committee remember when, after a series of the most disheartening failures, he had almost resolved to abandon his work as a useless waste of time and money, when the words of advice and encouragement he received from him urged him to renewed and more successful efforts. We can all recall the genial influence of his character which seemed to pervade all our informal gatherings and excursions, always ready to contribute his share to render the occasion a success, and by his example making us indeed a united band; and that the spirit which animated him may always be present in the future; and that his example and precepts may excite us to renewed action, is the fervent wish of your committee.

(Signed.)

John C. Browne,
F. T. Fassitt,
George Vaux, Jr.

On motion it was directed that the Memorial be spread upon the minutes of the Society, and a suitably prepared copy be presented to family of the late President.

The Committee on Membership reported the election of Mr. Edward Pennock as an active member.

Mr. Joseph H. Burroughs, for the Committee of Ten appointed to consider the advisability of securing more convenient quarters, and the establishment of a working department for the Society, reported that several meetings had been held, but the Committee was not quite ready to make a report. He moved that in view of the importance of the subject, and to avoid taking up the time of a regular meeting with a prolonged discussion, that when this meeting adjourn it be to meet on Wednesday evening, May 14th, to hear and discuss the report of the Committee. Carried.

Mr. Frederick E. Ives sent to the meeting a package of photomicrographs of most beautiful quality, being among the first work of this character he had done. In a note accompanying the prints be stated that they were made with comparatively low-priced objectives, which were not intended for photographic work, and not selected with a view to such use. Some of the plates used were Carbutt "Orthochromatic," others, Seed plates treated with erythrosine, and all exposed through yellow color-screens. A small pencil of light was used for amplifications up to 40 times, a bull's-eye condenser for medium powers, and condenser of 70 degrees for high powers.

Mr. Cheney, referring to the matter of incrustations on cover glasses of lantern-slides, stated that having had occasion to re-mount two old silver prints which had been framed for many years, he found the same incrustation on the glass which had covered the pictures. In this case the cause could not be looked for in any chemicals emanating from the plate. He attributed the incrustation in some way to acetic acid.

Mr. Stirling read a passage from a letter received from Mr. Pancoast, who had been investigating the subject very carefully. He had recently received a letter from Mr. York, the celebrated English slide-maker, stating that the incrustation was due to the use of French or German glass, which contains an excess of alkali which is acted upon by moisture. With English flatted crown glass the trouble could not occur.

Mr. Coates, who had a large collection of slides made by Mr. York, stated that he had never found the defect on any of these slides.

Mr. Fellows stated that he had experienced the trouble with English flatted crown, as well as with the French glass.

Mr. Sartain had frequently seen the deposit on the inner side of the cover glass of daguerreotypes. In this case it was thought that the chemicals used in forming the picture caused the deposit on the glass.

Mr. Stirling, referring to the recent Photographic Exhibition, at Newcastle-on-Tyne, England, thought the Society had reason to congratulate itself very much on the achievements of three of its members, no less than four medals having been won by them.

Mr. Pancoast won a silver medal for architectural subjects, Mr. Bullock a bronze medal for landscape work, and Mr. Redfield a silver medal for figure subjects, and also one for lantern slides.

The best English professional and amateur workers met on equal ground in these competitions, making the result all the more gratifying.

Mr. Francis Burrows showed a French hand camera, in the form of a pistol. It contained a roll of Kodak films, making a square picture the full width of the film. The exposure was made by pulling a trigger, as with an ordinary pistol. The gentleman who brought it over from France had made about one hundred exposures, but owing to some fault in in the shutter, which was rather heavy, it had not quite produced a sharp negative, the shutter invariably jarring the camera at the instant of exposure. A register showed the number of exposures made, and two short legs could be turned down in front, forming with the pistol butt a tripod stand for use with time exposures,

Mr. Earle showed a very beautiful camera made by R. & J. Beck, the mountings of which, as well as the lens, were of aluminium. The reduction in weight, as compared with brass as usually used, was about one-half. A rack and pinion movement operated the back portion of the camera in focussing,—a valuable feature, enabling a short focus lens to be used as readily as one of long focus. The front board could be extended by hand to any desired point.

Mr. Walmsley showed a neat and compact camera he had devised for microscopic work. The box was but about four inches square, mounted on an adjustable rim stand, with bellows for attaching to microscope in any position. Anthonys Lilliput plate-holders were used, carrying either plates or films. He had used powers ranging one and one-half to one-fifteenth with equally good results.

Mr. Redfield showed a tripod stand made by Ashford, of Birmingham, England. It was made of teak wood, and so constructed as to be very strong and rigid, and at the same time quite light. The lower leg, by a convenient arrrangement, could be drawn up between two of the four upper pieces entirely to the top, shortening the legs one-half, and making the adjustment for uneven ground or to various heights very convenient.

Mr. Hanawelt showed an exposing-shutter of his own invention, in which the slide moved horizontally in front of the line. The opening being narrower at top than at bottom, gave one-half the sky as compared with the foreground. By an ingenious mechanism, a sort of crank motion operated the slide, avoiding any jar at opening and closing, and regulating the movement of the slide so that its speed was slowest at the instant of full opening, and quickest at the beginning and close of its action.

Adjourned. ROBERT S. REDFIELD, Secretary.

NOTES ON OPTICAL LANTERNS BEFORE PHILADELPHIA PHOTOGRAPHIC SOCIETY.

The subject announced for discussion was "Optical Lanterns and Methods of Illumination in Connection Therewith," which was introduced by Mr. Stirling, with the following remarks:

"I make a personal statement at the start, which is to the effect that I am going to talk on something I know very little about. The idea is simply to speak of lanterns very briefly, and tell you what we have here, and, if the members desire, to show one or two of the lanterns. Like a good many other scientific apparatus, the lantern was originally very little more than a toy. It is very "antique," and there has been but little change in the general principles of the lantern that we have now. There are various references in books dating in the middle ages, in the 15th, 16th, and 17th centuries, to indicate that the magic lantern was used—that the principle was known. There are some remote references in ancient writings on the black art, which have been thought to refer to the magic lantern. But it is known almost positively that it dates from somewhere about the middle of the 17th century.

"The light we use now is practically the Drummond light, which was invented by Lieutenant Drummond, a royal engineer, about 1826. A Philadelphia scientist had previously discovered that the mixture of hydrogen and oxygen gases in the blow-pipe produced the most intense artificial heat hitherto known. I think the temperature of an oxy-hydrogen flame is estimated to be 4,000 degrees Fahrenheit. The illumination that was used in early lanterns was very imperfect. The illustrations show single wick lamps, and even candles. I believe the first scientific apparatus for the burning of mineral oil was produced here in Philadelphia by Mr. Marcy. He called it the sciopticon. As far as I know, there has been very little change in that instrument, but of course it has been improved. The lamp is a two-wick burner, and the flame-chamber is part of the body of the lamp. There are innumerable styles of oil lanterns, with two wicks, and set, as in that one (pointing), edge on the condenser. There is a lantern here with two wicks set at an angle. There are two-, three-, four-, and five-wick lamps; and here is a new lamp, in which there are two concentric wicks. The relative virtues of these different forms of oil lamps is an open question which, possibly, is a suitable one for the members to discuss themselves.

"There are several different methods of using the oxy-hydrogen light. The jet that is now generally used is what is called the mixed jet. The gases are mixed just before they are ignited, and Lieutenant Drummond found that the burning of these gases through a blow-pipe upon a surface of lime produced a light which is equivalent to 430 candle-power. Other substances than lime have been sought for, but none have been so satisfactory.

"Here is a primitive form of the mixed jet. The two gases are supplied to a little chamber by separate openings. They are mixed there and then pass up to the nozzle of the jet. A very simple form of it is the one in this lamp, which is the invention of Mr. Ives, a member of this society, and which is a model of compactness.

"The danger of using a mixed jet results from the fact that these two gases when mixed become highly explosive, and if for some reason or other the pressure in the cylinders happens to be unequal, a mixture of the large volumes in the cylinders is liable to occur, and a terrific explosion is the consequence, with sometimes fatal results. In order to avoid danger, what is called the safety jet was invented, the principle of which consists in the mixture of the gases at the moment of ignition. Still another form is called the oxycalcium jet, in which the flame of the spirit lamp takes the place of the hydrogen, the oxygen being blown through the flame under pressure. A practical difficulty in lantern operation is the preservation of the limes. When not in use they are apt to become air-slaked, and when in service they become disintegrated by the action of the intense heat. This disintegrating action proceeds rapidly while the jet is burning, causing a pit in the lime. This reduces the strength of the lime, besides forming a source of danger to the condenser, which is liable to be broken by deflected rays of heat. Therefore various mechanical contrivances have been used to turn and raise the lime, so that a fresh surface can be readily presented at the orifice of the jet. Some of these move by clock-work and some by hand. Specimens of both systems are upon the table." Mr. Stirling went on to explain the principle of the Ives' saturator, and other appliances intended to obviate the necessity of providing a hydrogen cylinder or source of supply.

Mr. Vaux asked if any arrangement had been made to prevent back pressure of the gases. Mr. Stirling replied that such valves were in successful use.

MAKROSCOPIC PHOTOGRAPHY.

SEVERAL articles have lately appeared in the English journals on the application of photography to the medical science. In these papers its utility was pointed out, and a great future prophesied for it. *Photography* (London) has especially taken up the subject, and two able papers have already been published in that journal. In the first paper the subject of Medical Photography was treated in a general way. In the second, the Makroscopic branch was treated, leaving the microscopic branch for a subsequent article. We reproduce a copious extract from the second paper, which cannot but interest our scientific readers. Our British contemporary states:

Under the head of makroscopic photography falls such work as photographing living patients in hospital wards, in rooms specially adapted for the work in hospitals, in the consulting room; photographing the cadaver before or during *post-mortem* examination; photographing morbid tissues after removal from the patient, or from the cadaver, these tissues not being prepared for the microscope.

Regarding apparatus for use in the ward, in the consulting, or *p. m.* room, or in an apartment set apart for such work—we have seen too often the ordinary tourist's landscape camera used for such work, and the ordinary tripod. Of course, these appliances will work all right, but we would suggest studio apparatus. A half-plate camera with "repeating back" is our idea of the suitable, and a studio stand on good casters, preferably covered with rubber or cloth to prevent noise. The stand must be adaptable to a considerable height, and must go very low; we may have to deal with a child on a chair, or with patients on the usually low hospital beds. As a rule we notice that the window-sills in wards are rather high, and so the lower part of ward is but dimly lighted; a bed near a low-silled window is generally very badly lighted. The stand should give the lens a range from, say 2 feet 6 inches to 5 feet 8 inches, and should be steady at all heights.

The repeating back of the camera we consider of great importance, and we speak from experience. The exposure in a ward, and in different parts of the ward, sometimes at one end, sometimes near a window, sometimes far from one, is never by any means an element of certainty, and we always recommend duplicate negatives with varied exposure. With a repeating back no re-focussing is required, while if the operator desires a different view, he has every facility for getting it, and so he has two aspects in one plate, which is found very convenient.

The lens used should be of the portrait type, or at least should work at *f*4, or as near to that as possible. The focal length may be from six to eight inches. We see no useful end to be attained by making the negatives larger than quarter-plate or half of a half-plate, and as the best method of finally utilizing the illustrations is by means of lantern slides, the quarter-plate answers well, and the half-plate repeating-back camera, with, say, a 7-in. lens, will suit our purpose.

No doubt success would be more certainly achieved if the patients could be conveyed for photographic purposes to an apartment suitably lighted; but in many cases the patient cannot be conveyed away from his bed, and in such cases we recommend the use of a flash light. Many private consulting rooms—we may say most—are not remarkable for brilliant lighting, and here, too, the flash will come in handy. *Post-mortem* rooms, so far as we have seen, are nearly always badly lighted, and operating theatres are often lighted only from above. In all such cases, and in other cases besides these, the flash light will be of the greatest service.

We would recommend the use of pure magnesium powder and a flashing arrangement that projects the powder upwards rather than horizontally. We have two reasons for preferring the upward impulse. There is no danger of blowing powder, flame, or smoke into or towards the patient's body, and the smoke can be more easily caught after the upward flash than after the other. A difficulty may suggest itself to our reader in the matter of the smoke that arises from flash lights as generally produced, but Dr. Patterson suggested to the writer a very good way of getting rid of the smoke. An assistant holds an ample cone of brown paper over the flash lamp, the smoke rises into the cone, and if the open end of the cone be at once closed by a flat piece of wood, the cone and the smoke can be removed from the ward—bodily, as one may say. Mr. Victor Corbould informs us that the smoke arising from his flash light is not a nuisance in the ward, the quantity not being sufficient to inconvenience anyone.

We would also urge the advantages of using color-correct plates in the class of work with which we are dealing. In ordinary cases no yellow screen will be required, but when special appearances are important, and when the ward is very full of clear light, and probably always with the magnesium light, the screen will be found a great help. The commercial plates can be used, or plates treated with ammoniacal erythrosin, solution while in many cases where dissections are our subject, it will be found necessary, if we wish the best results, to use cyanin-treated plates. We propose, when time permits, to make some experiments in correcting plates for color in such a way as to make them most suitable for work on dissections. We need hardly point out to those who have seen dissections or *post-mortem* examinations that the surfaces usually presented are about as unpromising subjects for photography as could well be found, but the experience we have had, slight as it is, gives us a lively hope that by suitable treatment of plates we may be able to produce results in this line far more easily and with far higher qualities than we can achieve by either plain plates or plates with sensitiveness relatively enhanced to the yellow region of the spectrum.

THE NIGHT-BLOOMING CEREUS.—Our esteemed contemporary, the *Photographic Times*, of April 25th, 1890, treats its readers to an excellent illustration—a photogravure of a flower subject. In composition and execution this is almost above criticism, and well illustrates the possibilities of Blitz-Pulver or Flash-Light photography. At the same time we cannot help calling the attention of our photographic brother of the *Times* to the fact that the superscription is misleading,—the plant flower here shown is not a "night-blooming Cereus," but merely a more or less common species of the Cactus family, of the subdivision Ephiphyllum or Phyllocactus, —if a night-bloomer, the *P. latifrons*. The Cereus is of an entirely different habit and appearance. The AMERICAN JOURNALOF PHOTOGRAPHY is the only photographic magazine that has ever published a picture of the night-blooming Cereus,—giving a series of plates showing the evolution of the grand monarch of the floral kingdom. We allude to our article in the JOURNAL for September, 1888,—"The Evolution of the Cereus." We expect in the near future to present to our readers some further matter on this subject.

MORE AMATEUR PHOTOGRAPHY IN SOUTH JERSEY.

THE amateur photographers of Bridgeton, New Jersey, have lately formed a Society consisting of about twenty-five members, and have fitted up handsome rooms in the centre of the city. These rooms are arranged as shown in the accompanying diagram. Their large reception room or parlor is forty by twenty, with high ceiling, with both northern and eastern lights, and is provided with a library, reading tables, various games, such as checkers, chess, etc. On the walls are a number of exhibits of the work of the various members. At the south of the main room is a hallway and a printing-room about six by seventeen, with southern light, provided with individual cupboards, wash-sinks, soaking-boxes, etc. There is an outer or dry dark-room, with outside red light and red gas lantern, and an arrangement for printing bromide enlargements. This also forms a safety-hall between the printing-room and the main dark-room. The main dark-room is about six by seventeen feet, fitted up with sinks, provided with sliding trays, drying racks, and individual cupboards for chemicals, etc., for each member. It is well ventilated, and so arranged with pure fresh air from outside, which constantly passes through it. The dark-room is lighted by several ruby and orange panes of glass with gas burners and reflectors outside, the light being controlled by keys from the inside. It is provided with an abundant supply of clear, cold spring water. The printing-room faces toward the south, and has two large windows, with printing-racks, etc.

Considerable interest is taken in photography in Bridgeton, and there are many little lakes, raceways, and fine views among the pine woods and on the river, which are highly appreciated by visiting amateurs. The name of the club is the "Camera and Wheel Society of Bridgeton." They will be very glad to welcome at any time amateurs from other cities who may visit South Jersey, and extend the use of their rooms at any time they may call.

The President of the Society is H. A. Janvier; Vice-President, F. F. Smith; Secretary, H. L. Reeves; Treasurer, George B. Hampton. They have also a board of three managers. Their dues are $5 initiation and $1 for monthly fees. A number of their members have just purchased an Ives lantern with gas and oil apparatus, and will give considerable attention to lantern slides, etc.

An invitation is extended to members of other societies to visit the rooms, where a cordial welcome will await all that do.

MAGIC PHOTOGRAPHS.—Print from a negative as usual, either on albumenized or plain paper, but do not tone in gold; fix in hyposulphite of soda, and thoroughly wash; then immerse the prints in a saturated solution of bichloride of mercury till all trace of an image has disappeared. (If the solution be warmed, the action is much more rapid and complete.) Afterwards wash and dry. When it is required to re-develop them, have a piece of blotting paper previously soaked in hyposulphite of soda and dried; moisten it with common water, and while still wet press it down on the invisible image; instantly the picture will reappear with more than its original vigor; if it be again washed the image will be very permanent.—*Photography.*

GENERAL NOTES.

PICTURE PROFITS WILL VANISH.—Photographers in this city are organizing to bring to bear on Congress influence enough to defeat the proposed increase of duty on albumenized paper from fifteen to thirty-five per cent.

A circular accompanied by a petition has been issued by J. M. Appleton, president of the Photographers' Association of America. It is designed to awaken members of the House of Representatives to the enormities of the intended tariff. This petition, after reciting the state of facts, declares:

It would benefit a very large class of persons if the duty were removed altogether, but if this cannot be done we certainly can see no reason for increasing the duty beyond fifteen per cent. If American albumenizers cannot produce a satisfactory article with that amount of protection they cannot do so at thirty-five per cent.

All the persons upon whom I called for information and expressions of opinion on this matter, whether importers of albumenized paper or its consumers, the photographers, agreed in their testimony as to these points.

1. American manufacturers, no matter what protection the tariff may afford them, cannot produce the albumenized paper required in fine photographic work.
2. Importers would be obliged by the proposed increase of the tariff to add $6 a ream to the price of the paper.
3. Photographers, owing to the competition in their business, would be unable to transfer the tax to their customers. They would have to pay $6 a ream more for their material, and furnish photographs at the same prices as before.

In the words of the petition now in active movement among the trade: "This increase will take at least $100,000 from the pockets of photographers throughout the country and increase the surplus in the Treasury by that amount without benefiting any one."

"It is an outrage, this scheme to advance the duty to thirty-five per cent," said Mr. C. D. Fredericks. "If albumenized paper of the requisite quality could be made here there might be some excuse for such a measure. But it can't, and we must use the imported article. Therefore, this addition to the tax is simply a robbery of photographers to the extent of $6 a ream on all the albumenized paper they use."

Mr. Anthony and Mr. Wilcox, of the Broadway importing house, explained that they knew the best quality of albumenized paper could not be made here, because they had tried it, and had had to give it up. A successful manufacturer of it came from Germany, and tried to make it in Hoboken, but, even with the protection of a fifteen per cent. tariff, he cannot compete with the imported article. This firm has lately asked the Committee on Ways and Means to place this article on the free list and at any rate not to advance the duty.

"We are all tariff men here, yet we are down on the tax," exclaimed Mr. W Irving Adams, of the Scovill & Adams Company, after explaining how the waters from melted snows of the Alps gave a finish to the paper made by a particular factory in Rives, France, which enables the Dresden albumenizers to beat the world and the American protective tariff.

"Are you going to beat the proposed advance?"

"We must beat it."—*New York Herald.*

THE number of plates which amateurs absolutely waste is simply enormous. As an instance we may relate the following experience. Our rambles awheel last Friday took us to Stratford-on-Avon, the church at which place is a much-photographed spot. The best view is taken from the fields, and has the churchyard and the river in the foreground, together with an entire and almost uninterrupted view of the whole side of the building. We strolled down through the fields after dinner, and there were three amateur photographers busily engaged in focussing upon the church, quite reckless of the fact that the sun was just over the spire. Consequently they must have had it very nearly in their lenses, and the whole of the details of the church, the churchyard, and nearly everything in the foreground were shrouded in that misty shadow which one meets with on a fine day. The result would necessarily be little more than a silhouette. We remarked to one as we passed that "he had come at the wrong time of day" for the view in question, before ten in the morning being the best time. His reply was characteristic. "Well, I am here now, and must make the best of it." We are afraid his development of that picture will show that the best was after all a bad job. Exposing plates on architectural subjects right against the sun is absolutely useless, and why, "because he was there," a man should simply throw away plates surpasses our comprehension, unless, indeed, he was ignorant of the fact. In this case, however, perhaps it was a case of "Where ignorance is bliss 'tis folly to be wise."—*Photography.*

THAT photography has extended its sphere of usefulness into all the professions and nearly all occupations, is becoming generally known in these days. The camera has been for some time a valued instrument on board the men-of-war of this country and other nations, as well as in the armies of the various governments; but, until a letter, dated March 20th of the current year, reached us from Malta, signed by Alfred Davis, "Sergeant of Photography" of Royal Engineers, we did not know that photography had received official recognition in the manner thus indicated. Sergt. Photographer Davis is evidently an enterprising worker in our art. He seeks for all the information on the subject that he can get, and keeps up with the literature of the science as best he may. "Will you kindly forward me, at your earliest convenience," he writes, "The American Annual of Photography and *Photographic Times* Almanac for 1890?" and adds, "You might put up a catalogue of your publications, if convenient." We shall be glad to hear from Sergeant Photographer Davis again.—*The Photographic Times.*

THE month following the appearance of these notes will probably be the best in the whole year for instantaneous photography. Give your shutters a good overhauling—they will need it—and oil them carefully. Wipe your lenses with a little alcohol, and let your camera be thoroughly light-tight. Then sally forth on a *warm* May day, after a shower, keep the sun well over one shoulder, and you may use an aperature of *f* 16 and an exposure of the hundredth part of a second, and still find your plates "fully exposed." But you must use *fresh* plates; last year's stock won't do for such work. Reserve the old plates for "time exposures."—*Amateur Photographer.*

LITERARY AND BUSINESS NOTES.

THE *Photographische Rundschau* (Vienna) contains articles on "In the Land of the Pharaohs," and "P. Möessard's Cylindrograph," a new form of camera. The current number contains several illustrations, one being a magnificent collotype of a bunch of flowers taken on an orthochromatic plate, and it is difficult to believe that even a direct print from the negative could be better.

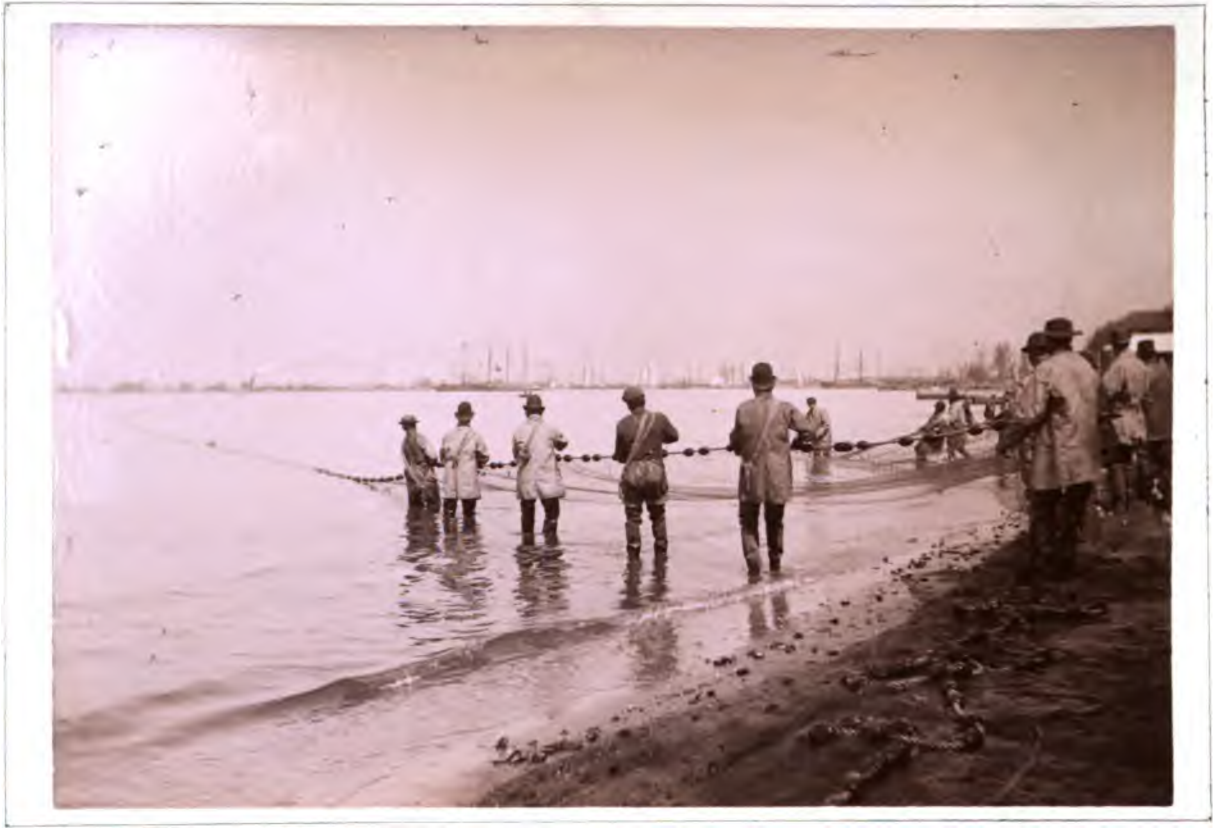
The negative is the work of Sir Robert Knight von Stockert, of Vienna. The composition of the flowers shows an artistic conception rarely met with, in fact the selection of the individual flowers and sprays composing the bunch, as well as the arrangement and blending is so delicate and chaste that it is hard to believe that it is not the handiwork of a maiden's nimble fingers.

The lighting of the subject is especially successful. Sir von Steckert informs us that the picture was made with Voigtlander Wide Angle second smallest stop, on a Vogel-Obernette, extra rapid color plate. No color screen was used.

The excellent mechanical execution by J. Baeckman, in Karlsruhe, is above criticism. The special collotype process employed is known as Matt-Lichtdruck.

L'Amateur Photographe (Paris) gives the following reducing-bath for negatives: Place the negatives in water for half an hour, and then in a bath of 100 parts of water, four parts of sulphuric acid, six parts of 30 per cent. solution of bichromate of potassium. The action of the bath is very energetic, and should be carefully watched. The reduction takes place very uniformly, and no discoloration of the negatives takes place. The negatives so reduced can, if desired, be subsequently intensified.

WE have received, with the compliments of the *Photographic Times*, another publication in which photography is practically treated,—"The Lighting in Photographic Studios," by P. C. Duchochois. It treats of the general principles and rules to be observed to achieve professional success. The rules and effects of lighting, the construction of the glass-house, and how to regulate the light, and modify its actinic action, are all subjects which are well handled by the author. Hints as to background, posing, retouching, and the uses of orthochromatic plates in portraiture, all matters of interest to professional photographers, are to be found within the scope of this compact volume.



NEGATIVE BY
THOS. H. MCCOLLIN.

FOR AMERICAN
JOURNAL OF PHOTOGRAPHY

"SHAD FISHING ON THE RIVER DELAWARE"

AMERICAN

JOURNAL OF PHOTOGRAPHY.

Published by THOS. H. McCOLLIN & CO.

VOL. XI. PHILADELPHIA, JUNE, 1890. No. 6

THOS. H. McCOLLIN, Managing Editor. J. F. SACHSE, Associate Editor.

HOME PORTRAITURE.

IT seems to be generally admitted that the amateur begins by undertaking the most difficult branches of work first, and after meeting with divers discouragements either abandons the whole affair or else gradually discovers the error of his ways and gets hold of the right end and moves on to success and satisfaction. The beginner's idea of a photograph is a picture of somebody, and of a camera as an apparatus for taking people's pictures with, and in many cases that is all he wants it for; and when he is carefully advised to start with slow plates, and essay only well-lighted views, he naturally resents such ill-timed suggestions and generally goes home immediately and proceeds to "take the baby."

This proceeding, however, is rarely a success, and usually it is only after many tribulations that really satisfactory home portraits are produced; but there really seems to be no good reason why some of the trials and failures might not be avoided, or why one may not profit by the hard-bought experiences of others in this most desirable and pleasant branch of amateur work.

To make fairly good portrait work, however, requires suitable tools; but these need not necessarily be the most expensive. The lens should be of fairly long focus —about twelve inches,—and the rapid rectilinear type will generally be found most available. If the cost of this be found too high, good work may be done with a single achromatic landscape lens of about fifteen inches focal length, in which the fixed stop has been reamed out to a size of not less than one inch to one and a quarter inches. This enlargement of aperture will of course materially reduce the marginal definition of the field; but when that is wanted, smaller diaphragms may be inserted, and for portraits, where only the very centre of the field is to be employed, the increased opening will give the desired speed, while with this length of focus and limited field the spherical distortion is so small that it may be neglected. For portraits, great depth of focus is not needed, and indeed in many cases is undesirable, and if good definition is obtained upon the features, so that the true expression is secured, the sharpness may well be permitted to diminish for the remainder. Of course the possession of a fine portrait combination is much to be desired, and where the expense of this is prohibitory the intermediate types, such as the Steinheil Antiplanet or the New Voigtlaender Euryscope, are nearly as good.

As far as the camera goes, anything which is steady and light-tight will answer, and it is unnecessary to spend money in that direction. For cabinet portraits, 5 x 7 holders are about right, giving a moderate margin for centering and trimming.

The amateur is generally limited in his supply of screens and backgrounds, but sometimes the extemporized affairs are more pleasing than the orthodox professional pilasters, balustrades, or gates, and if care and taste are displayed in handling the subject the less conspicuous the background the more satisfactory the result is likely to be.

A framework somewhat resembling a large clothes-horse can readily and cheaply be made at a neighboring carpenter shop, and should be about eight feet high by ten feet wide, and for convenience of storage it may be pinned together so as to be readily knocked down and stood away when not in use. Upon this frame various things may be draped, and often very effective results obtained. There should be one curtain of gray flannel, giving, when photographed, a neutral tint just right for vignetting, and soft enough to hang in easy folds without looking harsh or stiff. This may be hung from the top by hooks and rings, or may be smoothly drawn when the picture is to be vignetted and the folds are not desired. Many styles of shawls produce effective backgrounds, especially when far enough back of the sitter to be somewhat out of focus; while in most cases the easy chair which does duty for a posing chair is much less obstrusive and more effective if entirely concealed under drapery whose apparently careless folds are not altogether accidental.

When the floor at the feet of the sitter is to appear in the photograph, it should be kept subordinate to the other details, and a brilliant carpet pattern is best covered by some quieter rug or mat. Skin robes or mats are often very quietly effective, and seem to hold the light which they receive in a way which has shown itself very serviceable in more than one instance.

The great point, however, in amateur portraiture is the illumination. The absence of a skylight, and the difficulties in the way of controlling the light which is to be had—these are the common causes of the defects to be seen in most home portraits. A room should be chosen with as high a ceiling as possible, and with a projecting bay window whose openings extend as high as can be secured. If there are other windows, let them be closed, so that the light shall come approximately from one direction. Never mind the exposure; west or south will do, if only the quantity and direction of the light can be controlled.

Place the camera close to the middle window, leaving only room enough to get behind it, and close the lower shutters behind the camera, leaving the upper ones above it partly open to secure a slight front illumination. Upon one side the shutters of the bay window should be opened entirely, so that the most brilliant light falls upon the sitter from that direction, and then by regulating the amount of opening upon the other side the shadows may be softened to any desired extent. At first the effect should be examined upon the focussing screen of the camera, which should be of the finest ground glass obtainable. Use the full opening of the lens, and focus upon the eyes of the model, and the definition of the rest will take care of itself. A microscopic sharpness, by which every thread in the garments may be counted, is readily obtained by using a smaller aperture; but such precision is not wanted.

Never mind about head-rests or their substitutes, but try to place the sitter in such an easy and comfortable position that such supports will not be needed. Avoid straight lines in the composition, and if the lens is of sufficient focal length there need be no fear of undue distortion of points nearest the camera. Standing just behind the camera, direct your sitter to glance in the direction which in your judgment gives the best effect, and then selecting some object upon which the eyes may rest, the exposure may be made. With rapid plates, such as Seed 26, or Cramer 35–40, two or three seconds with bright daylight will be sufficient, using an aperture of F 8; but the beginner must expect to waste a few plates in gauging the light of his extemporized gallery. After having arranged the details of this part of the work, however, the amateur will soon find the photographic side of the work a matter of routine, and be able to devote his thought and attention to the higher and more artistic matters of posing, draping, and composition, in which, if he will, he may find a source of endless delight. HENRY HARRISON SUPPLEE.

ZOOLOGICAL STUDIES.

THE *Deutsche Photographen Zeitung*, of April 9, 1890, treats its readers to a specimen of Ottomar Anschütz's Animal Photography. Herr Anschütz, who has made a special study of Animal Photography, is to be congratulated on the success of his efforts. To us there is, however, one great objection to all of the subjects from this source which we have seen, viz.: the painted-in or artificial backgrounds. We have seen a number of professional, as well as amateur studies, made in our own Zoological Garden, in Philadelphia, with natural surroundings, where the effect was far superior to the foreign pictures with background either artificially worked on the plate, or entirely eradicated, as is the case in the accompanying picture.

The *Photographic News*, of London, publishes a translation of Herr Anschütz's paper and methods, prefixed with an introduction of their own, on the subject, which originally appeared in the *Photographic News* many years ago.

About a quarter of a century ago an interesting article on the photography of brutes, written by Frank Haes, and read before the then North London Photographic Association, appeared in the *Photographic News*. The experiments of Mr. Haes seem to have been attended with no little difficulty and danger. In the first place, he complains that the prevailing colors, red and yellow, are not favorable for photography. Next, he was more or less unsuccessful, generally more, with the zebra and the ratel, and hyrax (the Biblical coney), and the kiwi-kiwi, the leucoryx, and the Syrian wild ass, the dingo, and the Tasmanian devil.

The chimpanzee was too ill-tempered to allow his portrait to be taken, and the innate modesty of the monkey possibly lay in the way of a successful picture. One variety of the simiæ, when everything was ready, would turn suddenly round and present a view which the artist by no means desired. Another variety would insist on looking steadily into the camera.

The goats had to be held by the beard, the weak point of the goat, and the iguanas by the tail. The African python chose to tie himself into a very complicated knot; and the confusion of the armadillo was such that it was difficult to determine which was his worthier end. The clouded tiger could not well be taken inside his cage because of the bars, and the space he occupied was, says the author of the article, too small to admit of my introduction. There may have been other reasons for his not entering the clouded tiger's den, but he has omitted to declare them. The modesty of the monkeys has already been mentioned, but they appear to have been inferior in this virtue to the aye-aye. This singular nocturnal quadruped, the *Cheiromys madagascariensis*, which Cuvier placed among rodents, but was referred by Sonnerat to the family of makis, or lemurs, gave especial anxiety to the photographer. Its diffidence, whether natural or acquired, was extreme. When the camera was in readiness, it immediately covered itself with its tail.

Brute photography is better managed now than then. In the Zoological Garden of Breslau, and elsewhere, many excellent portraits have been taken. Of the method adopted in taking a bear in Breslau, the following description is given in a German paper:

The present month's number, No. 15, of the *Deutsche Photographen Zeitung*, presents its readers with two illustrated supplements: the one an instantaneous photograph of a bear by the well-known Ottomar Anschütz, of Lissa, the Polish Leszno in Russia, some forty miles south of Posen, signed on a portion of rock which the animal is mounting, "Ottomar Anschütz, Lissa (Posen), 1888." Of this a photogravure has been printed by H. Riffarth, of Berlin. The other is portrait, an original negative of Fr. Muller, of Munich. This is extremely well represented as a photogravure by the Art Publication Institute of Dr. F. Albert & Co., of Munich, and shows, says the German paper, what the treatment of Dr. Albert is able to effect in the ordinary taking of portraits. The treatment is even better adapted for this kind of photography, as we shall demonstrate, says the *Deutsche Photographen Zeitung*, in our next number, which will contain a group by Brokesch, of Leipsic.

With regard to the portrait of a bear, the reader is informed that the original sitter, or rather climber, is to be found at his present residence in the Zoological Garden of Breslau, which has been often visited by Herr Anschütz, as is well known, for the purpose of taking portraits of its inhabitants. We will, says the above-quoted journal, give our readers some little insight into the plan adopted by Herr Anschütz of taking wild animals, which he has himself kindly communicated to us.

The usual method of taking savage beasts in their cages has a good result only exceptionally, for the three following reasons. The first reason is that the lighting arrangements are not generally of the most convenient character; the second, that the narrow space in which the animal is confined hinders its free and natural motion; the third, that the iron bars of the cage are altogether out of place in the picture. Herr Anschütz, therefore, constructed for himself in Lissa a large enclosure or keep, in which he was able to take the smaller animals in various ways to his complete satisfaction. Foxes, wolves, and apes were also well photographed in this improvised animal studio.

But for the larger ravenous inmates of the Breslau Zoölogical Garden this enclosure was clearly not suitable, and these inmates could scarcely be transferred from Breslau to Lissa. Herr Anschütz then conceived the idea of building a larger and stronger kind of keep in the Zoölogical Garden. Through the courtesy of the directors of the Garden in Breslau, Herr Anschütz was able at the beginning of the year 1888 to erect a firmly constructed keep of strong planks of a superficial area of some 140 square metres. This enclosure was open above, but the walls had a height of six metres, which fulfilled all necessary requisites.

In an additional wing on one side of the enclosure there are placed three cages, serving for the sleeping apartments of the wild animals. On the side several underground passages lead into the enclosure itself. These are fastened with folding iron gates, and serve to facilitate the business of portraiture.

On the other side is an oblong aperture, furnished with an iron shutter. Here the apparatus is placed, commanding a view of the enclosure. As soon as the animal comes into the space commanded by the camera, the portrait may be secured. The background of the enclosure is a painted landscape, which is varied according to the habit of life, color, and size of the animal to be taken. Such variations harmonize naturally with the foreground, consisting of rock or stone.

When their photographs are to be taken, the beasts are caught and brought in a transport cage into the enclosure. After some time, and after they have become accustomed to their new apartment, they are photographed. The original pictures, as all of Herr Anschütz's studies, are of smallest size, and are afterwards enlarged.

A great difficulty often occurs in bringing the animals into the proper spot for their portraiture—that is, into the full sunshine. In this case hunger and thirst seem the only available roads to success. Living food is commonly distributed to the beasts on such occasions, whereby a more exact representation of nature and an increased effect is secured. The photographing of bears, says Herr Anschütz, is an especially difficult undertaking, since these animals manifest great unwillingness to enter the photographic studio.

Eight days were required to bring these refractory subjects before the photographic lens. Even fasting was unable to move their stubborn minds, and it needed an extreme degree of artifice to induce them to enter their respective cages. But *en revanche*, these bears behaved themselves, after they had once got into the studio, in a manner which was morally beautiful. Their general deportment was far more decent than that of other beasts.

And so Herr Anschütz was enabled to take over three hundred distinct likenesses of these regenerated brutes. Although, he says, I had on many occasions and with much zeal studied the character of Mr. and Mrs. Bruin,—or, as the Germans say, Herr Petz and Gemahlin,—I was nevertheless much astonished with the variety of their gestures and the general many-sidedness of their demeanor. The different sentiments of the mind are in no other animal so clearly expressed as in the bear. On several occasions I have been much surprised by their power of observation, and I have come to the conclusion that the bear is the wisest of the beasts.

The *Deutsche Photographen Zeitung* promises a description, at a later date, of the instantaneous apparatus employed by Herr Anschütz, an apparatus which was shown lately at the exhibition at Weimar. The manufacturer has, it seems, some additions to make, which will considerably change the character of the instrument.

PORTRAIT photographers may find value in the suggestion thrown out by the *St. Louis and Canadian Photographer* recently, that a mirror be provided in the studio, in which the sitter can be shown his reflected image just before or at the time of the exposure of the plate. Many cases of "bad expression" might be cured by some such contrivance.

SILVER PRINTING.

A FEW EXPERIMENTS AND DEDUCTIONS THEREFROM.

ONCE more the question of permanency of silver prints has cropped up, and, so long as the process remains popular, may be expected to be of periodical recurrence. Much has been already said, and so much is known of the attributed vagaries of the process, that there is very little new to learn or suggest respecting it.

Recruits to the army of photographers are continually being added, so that the repetition of an oft-told tale has at least the advantage of newness to some one or other.

It strikes one forcibly that if only a tithe of all that has been known and written was remembered, it would leave little or nothing more to say. Permanency, to begin with, as connected with photographs, is a debatable term, and I do not think that any one giving thought to the matter will deny that the metals employed vary considerably in their powers of resisting atmospheric influence, and prints made by their aid seem to have a proportional resistance. We know that silver prints, made when albumen was first introduced for the purpose, are now in existence and good condition, and also that very many have become faded and obliterated; in fact, there is no disputing that the greater proportion of them have become faded and yellow—two distinct faults, by-the-by, which might have been confidently predicted of a process worked so largely, and in the incomplete and unintelligent manner that silver printing on the whole has been. If we know why faults exist, we ought to be able to apply a remedy, and this by carefully examining the methods used in their preparation; but then, influenced by the general consensus of opinion, almost entirely based on seeing so many defective prints, faults owing to all manner of slovenly and makeshift plans, as certain in themselves to lead to disaster as if the prints were deliberately put in the fire and burned, have been without further thought ascribed to the instability of the process.

Many years ago a number of skilled chemists took the matter in hand, and the result of their investigations was certainly adverse to the permanency of silver printing. The conclusions arrived at were not encouraging with respect to the permanency of the process. No satisfactory explanation has been given why some silver prints remain perfectly good for an indefinite time, and others, prepared apparently in a precisely identical manner, fade rapidly away. The unknown quantities to be dealt with are seemingly fatal to any definite conclusions being drawn. The paper itself may be good, bad, or indifferent, and may be responsible for the eccentricities of prints made on it, but over which we have no control; in itself sufficient to upset any theory or to vitiate any experiment. Albumen, also, or whatever does duty for it, varies considerably in quality.

At certain periods of the year much of the egg albumen is obtained from preserved eggs, and behaves differently from that from fresh eggs, and is less suitable for albumenizing. Albumen is also obtained from other sources,—another matter rather beyond the control of ordinary photographers, who do not as formerly prepare their own paper.

Independently of all this, there is no reasonable doubt but that a strong negative, printed on heavily-salted paper, sensitized on a strong silver bath, will give a more permanent result than the system adopted nowadays, when most other qualities have to give place to modeling and delicacy. The results are undoubtedly more beautiful, but less permanent.

Without retouching (and the complaint of fading prints is almost entirely from portraitists), the majority of modern portrait negatives are thin images made up to printing strength by retouching, and it is to the lead pencil rather than to the real negative the photographer looks for effect, such negatives printed in the sun or very strong light giving but poor prints. The whole process is as much as possible contrived to give the best results from such negatives.

Many photographers make a practice of reducing their over-printed proofs after they have been finished, so far as their final washing is concerned, by re-immersion in strong hyposulphite solution or weak cyanide of potassium until the image is sufficiently dissolved out.

Prints reduced by either plan are probably less permanent than others not so treated,--at any rate the color is somewhat impaired.

Possibly the reducing action on the albumenate of silver, of which the modern prints are so largely composed, starts a decomposition that gradually continues till the proofs are worthless. Of course this applies to the first fixing, but is more pronounced with a second treatment, for it must be borne in mind that silver prints of the present day contain much less reduced silver and more organic matter than formerly, and are, as a matter of course, more easily affected by the hyposulphite and other reducing solutions.

The whole system of silver printing, as applied to porrtaiture in the present day, seems calculated to produce nothing but fugitive prints; they are certainly things of beauty, but not joys forever. The origin of the want of permanency is primarily in the thin negative; then follows printing on weakly salted papers, with a thick layer of albumen, and toning with a small quantity of gold. The fixing I believe to be frequently imperfect, and the washing afterwards very much too long. It is an undisputed fact that if prints are properly fixed, and the hyposulphite rapidly extracted afterwards, with a short washing to complete, they will be very much brighter and better in color and gloss than if the hypo is slowly eliminated and the washing continued for many hours.

This reduction of gloss by long washing seems to indicate that the albumen surface is partially dissolved by the long-continued action of water, and at the same time incipient decomposition presumably sets in, the very means intended to enhance the permanency having precisely an opposite effect. If the negative is strong and good, the printing conducted in strong diffused light, a reasonable quantity of gold used in toning, the hyposulphite bath good and sufficiently strong, the fixing thorough, and the washing effectual but brief, all precautions will have been taken that are required in the ordinary course of silver printing, and the results should be satisfactory in the matters of permanency and brilliancy.

The hyposulphite solution, which is a very important factor in the matter of permanency, may be inadvertently used too weak. The hypo may be bad in quality, so that when the required quantity is weighed out the solvent powers will be much below the standard; or, a large number of prints having to be fixed, the strength of the solution, being sufficient for the first lots, is not so for the last; the consequence is a proportion of the prints partially fixed yellow and fade after a comparatively short time, the first remaining good.

The next cause why silver prints fade is owing to the mountants or the mount.

The mountants in general use are starch, glue, flour paste, and gum arabic; of these, starch is the most popular, and when pure perhaps as good as any. Starch and glue may, and frequently do, contain impurities that will destroy the silver prints; the pure articles themselves, when made up for mounting, may become deleterious by keeping, which indicates they should always be freshly made. The white powder starch used for medical purposes is the best kind for photographers. Good flour paste is not to be despised; it adheres well, is innocuous and cleanly.

The mounts themselves are frequently complained of. I am very doubtful if much harm accrues from this source. Some few years ago I mounted prints with starch and with gum on some of the common yellow-brown straw-packing boards and put them aside.

Up to the present time there is not the slightest trace of injury apparent. This sort of board has the credit of being particularly impure. I have sometimes noticed that when impure mountants are used with a brush the brush marks are distinctly shown by faded or yellow lines on the face of the print, presumably where a rather thicker layer of the mountant remained. If fading was inherent in the print it would show itself in patches, or it might do so if the mountant was spread evenly by a roller or other means. Providing the mount itself was in fault, patchy discoloration and fading would also take place.

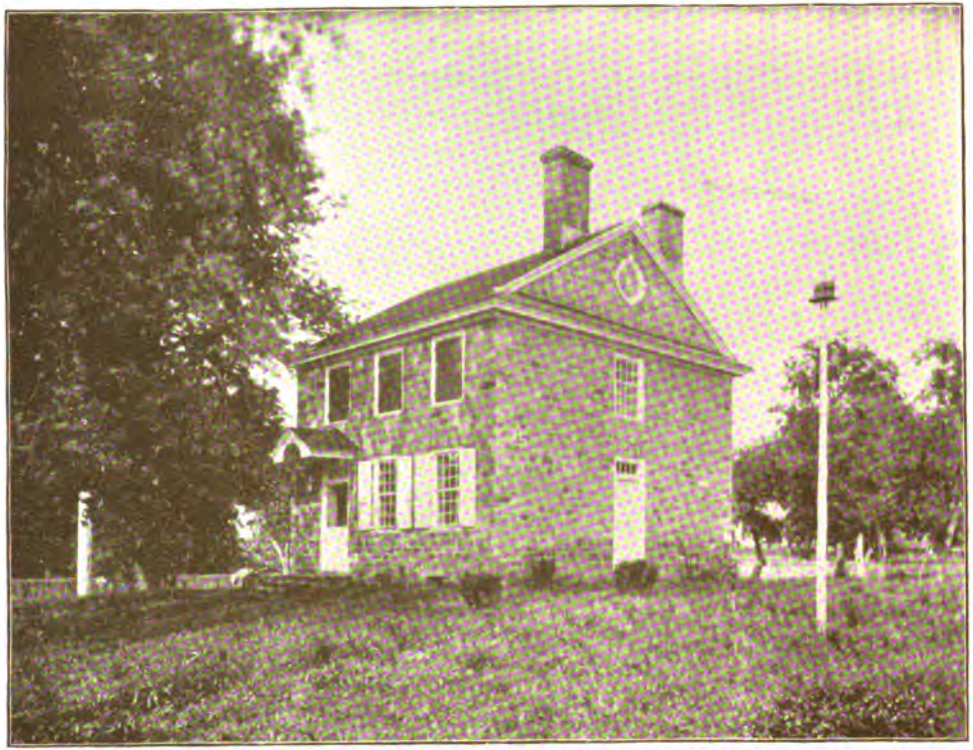
Spreading spots with nuclei, indicate foreign matter, not necessarily connected with the preparation of the print,—in all probability particles of a sulphur character. Metallic spots on the paper are visible and at their worst as soon as the print is finished; they never spread afterwards. Mounted prints usually begin to fade and go yellow at the edges, the fault gradually spreading inwards. This is generally attributed to the action of the atmosphere on the less protected parts—the edges. If this theory is right, unmounted prints, to which the air has free access all over, should be the first to fade; but, as we know, the contrary is the case. The conclusion one naturally comes to is that the cause of fading is either in the mount or mountant, and not in the print itself. That modern prints more rapidly deteriorate than those prepared years ago seems to be because they have not the stamina in them to resist pernicious influences, even if carefully prepared in all stages; and as many are not so prepared from a chemical point of view, thousands come to grief, and poor silver printing gets more and more the character of an unreliable process without deserving it.—*British Journal of Photography.*

EDWARD DUNMORE.

AMATEUR PHOTOGRAPHERS, BEWARE!—Farmer Wayback—Say, wife, han' me out the shotgun, the big horse pistol and my old huntin' knife.

Mrs. Wayback—What d'ye mean, Phelam, by takin' them to the field with ye?

"Well, I understand there's a band of premature authographers or some kind of outlaws comin' through the country takin' farms and everything else they set their eyes on. I calc'late to make it pretty lively for 'em if they try to take my farm in broad daylight."—*Chicago Post.*



WASHINGTON'S HEADQUARTERS AT VALLEY FORGE.

(DEC. 19, 1777—JUNE 19, 1778.)

NEGATIVE BY
JULIUS F. SACHSE.

PHILADELPHIA PHOTO-ELECTROTYPE CO.,
707 AND 709 FILBERT STREET.

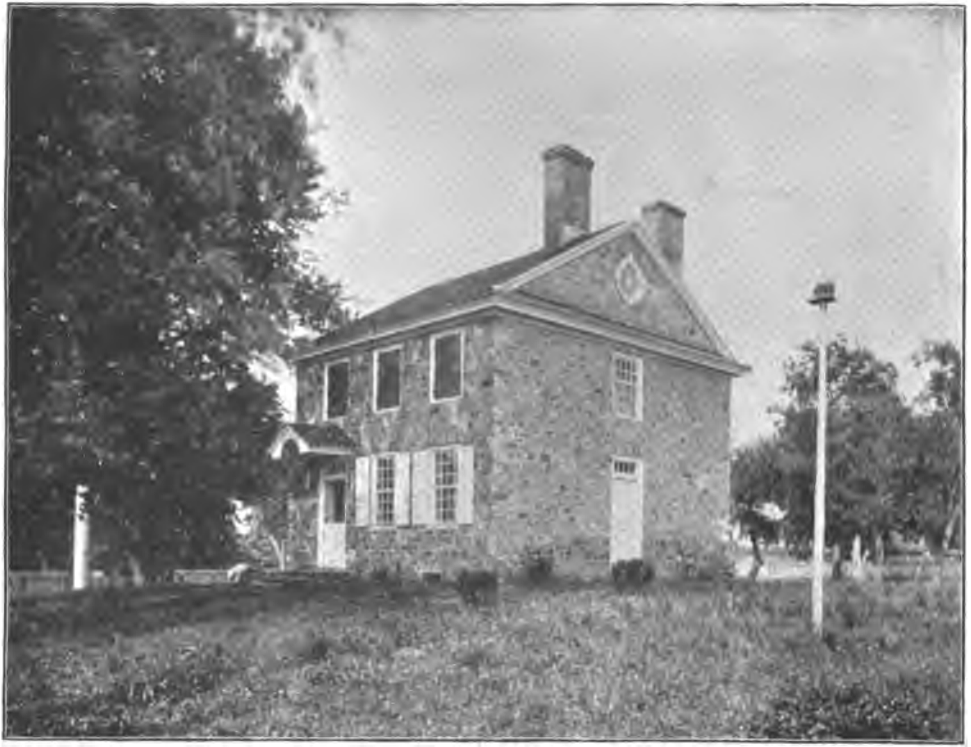
THE WASHINGTON [illegible] ARTERS AT VALLEY FORGE.

THE traveller on either [illegible] highways which skirt the Schuylkill on opposite sides of that [illegible] sixty-three and a half miles northwest of Philadelphia, may notice [illegible] between two high hills, on the western side of the stream [illegible] which flows a turbid creek of some volume, emptying [illegible] the great stone arch which there spans the ravine. To the [illegible] is nothing strange or remarkable in either the creek, hillsides, or [illegible] situation, however, to the student of history, and the true worshiper of liberty [illegible] of freedom, the mere mention of the name of the locality, "Valley Forge, [illegible] memories of Washington, and pictures the scenes of patriotism, [illegible] endured by the patriot army during the memorable winter of 1777-8, which [illegible] hour of the struggle, and proved the turning point of the war which was [illegible] the inhabitants of the land from the Atlantic to the [illegible] bound banks of the St. Lawrence in the North, to the [illegible] South. Here in this rugged vale was kept alive the flame of liberty [illegible] national existence, and it has been well said that nowhere [illegible] have we any record of greater self-sacrifice than was here shown [illegible] of the patriot army.

In addition to the historic associations connected with this ravine [illegible] hillsides, this immediate locality offers probably more attractions to the [illegible] photographer and the lover of nature for "romantic bits" than [illegible] miles around. The placid dam, the crystal stream, the steep hill[illegible] Joy and Misery, the rugged rocks, gnarled oaks, with the rank and [illegible]tion, all offer food for the camera.

On the day the current number of the JOURNAL is issued, it will be [illegible] to the day, that the patriot army,—an armed mob no longer, but [illegible]oughly disciplined army,—left their winter quarters on these hill sides, filed [illegible] ravine in review before Washington at his headquarters, and sallied forth to [illegible] the retreating British, and defeat them on the plains at Monmouth, thereby [illegible] that the experiences gained on the rugged hillsides of Chester County had fit[illegible] to cope with the best troops of England and Germany.

We have chosen for our illustration the old mansion house occupied by the [illegible]mander-in-Chief as his residence during that memorable winter, and since known as "Washington's Headquarters at Valley Forge." The building is still in almost the same condition as when occupied by Washington; the immediate topography, however, is completely changed. In colonial times a grassy slope or lawn extended to the Valley creek on which the house fronted; the same was the case towards the slight bluff on the Schuylkill, which was then a limpid fordable stream. The ford at that place was known as the "Fatland Ford." It had an ordinary depth of from eight to twelve inches of water, and was celebrated for its smooth stony bottom. The building of the canal and railroad some time after the revolution, together with the erection of additional mill seats, completely changed the situation. It is not within the scope of this paper to give an extended history of the old house, which was built by the [illegible] family about 1760, who then owned the "Mount Joy" or



WASHINGTON'S HEADQUARTERS AT VALLEY FORGE.

(DEC. 19, 1777—JUNE 19, 1778.)

NEGATIVE BY
JULIUS F. SACHSE.

PHILADELPHIA PHOTO-ELECTROTYPE CO.,
707 AND 709 FILBERT STREET.

THE WASHINGTON HEADQUARTERS AT VALLEY FORGE

THE traveller on either of the two great iron highways which skirt the Schuylkill on opposite sides of that river at a point twenty-three and a half miles northwest of Philadelphia, may notice, if he be so disposed, between two high hills on the western side of the stream, a small ravine, through which flows a turbid creek of some volume, emptying into the Schuylkill just beyond the great stone arch which there spans the ravine. To the casual observer there is nothing strange or remarkable in either the creek, hillsides, or the general situation, however, to the student of history, and the true worshiper of liberty at the shrine of freedom, the mere mention of the name of the locality, "Valley Forge," calls forth memories of Washington, and pictures the scenes of patriotism, privation, and sufferings endured by the patriot army during the memorable winter of 1777-8, which was the darkest hour of the [illegible], and proved the turning point of the war which was destined to assure [illegible] the inhabitants of the land from the Atlantic to the Pacific, and from the ice-bound [illegible] of the St. Lawrence in the North, to the burning sands of Mexico in the South! In this rugged vale was kept alive the flame of liberty in the gloomiest period of [illegible] national existence, and it has been well said that nowhere else in the world's [illegible] have we any record of greater self-sacrifice than was here shown by the rank and file of the patriot army.

In addition to the historic associations connected with this ravine and the [illegible]ing hillsides, this immediate locality offers probably more attractions to the amateur photographer and the lover of nature for "romantic bits" than any other spot for miles around. The placid dam, the crystal stream, the steep hillsides of Mount Joy and Misery, the rugged rocks, gnarled oaks, with the rank and luxuriant vegetation, all offer food for the camera.

On the day the current number of the JOURNAL is issued it will be just 11[illegible] years to the day, that the patriot army,—an armed mob no longer, but now a thoroughly disciplined army,—left their winter quarters on these hill sides, filed down the ravine in review before Washington at his headquarters, and sallied forth to overtake the retreating British, and defeat them on the plains at Monmouth, thereby proving that the experiences gained on the rugged hillsides of Chester County had fitted them to cope with the best troops of England and Germany.

We have chosen for our illustration the old mansion house occupied by the Commander-in-Chief as his residence during that memorable winter, and since known as "Washington's Headquarters at Valley Forge." The building is still in almost the same condition as when occupied by Washington; the immediate topography, however, is completely changed. In colonial times a grassy slope or lawn extended to the Valley creek on which the house fronted; the same was the case towards the slight bluff on the Schuylkill, which was then a limpid fordable stream. The ford at that place was known as the "Fatland Ford." It had an ordinary depth of from eight to twelve inches of water, and was celebrated for its smooth stony bottom. The building of the canal and railroad some time after the revolution, together with the erection of additional mill seats, completely changed the situation. It is not within the scope of this paper to give an extended history of the old house, which was built by the Potts family about 1760, who then owned the "Mount Joy" or

"Valley" Forge on the side of the creek about five-eighths of a mile further west, and which was destroyed by the British during the revolution. (September, 1777.)

When the house was selected by Washington for his head-quarters it was occupied by Isaac Potts. It is a substantial stone house of the colonial period, built of dressed stone with pointed joints, two and a half stories high, and measures 24 by 33 feet, and was particularly appropriate for Washington's uses. The iron-master who built it had not alone introduced a number of secret doors, drawers, and receptacles into the paneling of the rooms which, were of great use to Washington, and are shown to the present day, but had also provided two secret avenues of escape from the house; one of these opened through a sliding panel from a closet in the room occupied by Washington to the side door shown in our illustration; the other avenue of escape was by means of a subterranean passage way from the house to a clump of bushes on the bluff at the river side. The passage way was about 300 feet long, and also led to two large vaulted chambers some distance from the house, about 20 feet square and 12 feet high. For what purpose these chambers were constructed so far under ground is a mystery to the present day. When the Schuylkill canal was built and a dam constructed, the water was backed up and filled these chambers and passage-way, and their very existence was forgotton. A few years ago, however, the passage was rediscovered by accident, and an attempt made to shut the water off and reopen the caverns. This, however, was but partially successful, when it was the good fortune of the writer to photograph that portion of the passage by the aid of Blitz-pulver. The house and grounds are at the present time in the possession of the "Centennial and Memorial Association of Valley Forge," who are striving to purchase the whole camp ground, so that it may be held in trust forever as a "Shrine of Liberty" for the generations to come. JULIUS F. SACHSE.

Leopard, June 1890.

AMONG the countless contrivances invented to supply the wants of the legion of amateur photographers, the latest is a folding Ruby Lamp, which will no doubt supply a long-felt want to photographic tourists. The lamp is built up upon a sheet of tin which carries the two sides and ends hinged around it. This forms the back of the lamp, and upon its inner side are a couple of grooves, into which a parallel-sided length of ruby glass is inserted and carried in safety. The sides of the lamp, as we have before said, are hinged to the back, and when opened out just allow the strip of ruby glass to be inserted in the grooves, and this forms the fourth side (and front) of the lamp. The two side pieces are also provided with ruby glass and furnished with oval apertures. The end pieces, or top and bottom of the lamp, fold over in the opposite direction to the sides when the lamp is folded, laying nearly flat against the back. These fit over the edges of the side pieces, and perfectly keep out all light except that which passes through the ruby glass. The bottom is provided with a holder for night light or candle, and the top as well as the bottom with protected apertures for the admission of air. The lamp can be put into working condition in a very few seconds. When folded it occupies but a little space, and when ready for use provides a lamp of really large and serviceable size. It is one of the most compact and useful articles of the kind in the market.

FIXING PLATES.

IT is now conceded by all good authorities on bromide paper printing, that stability or permanency largely depends upon thorough fixation of the print. This same assertion has often been made concerning the ordinary silver print on albumenized paper, and is also quite true.

But the conditions involved in the making of bromide prints are so different from those in silver printing that it will not be amiss for us to compare them and see why the necessity for thorough fixation is so specially urgent in the case of the bromide print. Almost every one knows that the bromide print is made on a gelatine emulsion, while the silver print is made on a surface of albumen. The bromide print is the result of a process of development, while the silver print is "printed out" as the phrase goes. The albumen forming the vehicle for the sensitive compound in the silver print is an exceedingly thin layer; while the gelatine, which correspondingly forms the vehicle for the sensitive salt in the case of the bromide print, is very much thicker and heavier. The gelatine layer absorbs a large quantity of water, and swells to still greater thickness during the development and finishing, while the increase of bulk of the albumen layer of the silver print when wetted is so slight that it may be practically disregarded. Lastly, the silver print depends for good quality largely upon the keeping of the picture upon the surface, while the bromide print is rather one of those kinds where the image penetrates more deeply.

For the benefit of those of our readers who have never made silver prints, we may say that one chief point requiring attention is the condition of the fixing bath of hypo-sulphite of soda. This salt, although highly soluble in water, is quite unstable chemically, and is particularly susceptible to decomposition in the presence of acids or acid salts. Every care is taken that nothing of the kind is introduced into the bath. When the prints are "reddened" by means of acetic acid, they are always well washed before reaching the fixing solution.

This brings us now to one of the points that we feel sure is often overlooked by makers of bromide prints. Everyone conversant with the process will remember that when the development is concluded it is necessary to rinse off the developer with weak acetic acid in order to prevent foggy deposits and general discoloration of the print. The extreme weakness of the solutions generally used—say one drachm of the acid to thirty-two ounces of water—being overlooked, the prints are hurried into the hyposulphite without sufficient washing, and a highly undesirable decomposition is forthwith set up. The products of this decomposition are numerous; sulphur, sulphurous acid, and sulphide of silver being the chief ones. Supposing that the developer had been but imperfectly removed by the acid, there would also be more or less oxalate of iron present.

Even if the bromide print were thus carelessly and ignorantly made, it would nevertheless have fair chances of permanency when compared to the ordinary silver print. It has long been known that photographic images produced by development are more permanent in their character than those which are "printed out."

But there is another point connected with the fixing of bromide prints that we must not neglect to speak of. If permanent results are expected, *time* enough for the hyposulphite to fully do its work must always be given. And it should not be forgotten that the hypo really has a double task to perform: first to convert the unaltered portions of the gelatine-bromide of silver into a soluble form, and secondly to take them up or dissolve them. Besides this, the process has to be done throughout the whole mass of a tough gelatinous layer that is comparatively slow to receive chemicals, but slower still in parting with them.

Those who can look back to the early experiments with gelatine negatives will remember how many failures were caused by imperfect fixation of the plates. To those used to working collodion plates, it seemed impossible that so long a time was required for thorough fixation. But painful experiences taught us what we now know about the matter.

Before concluding, let us give a few words of practical advice. If silver prints are being made, see that before fixing they are well washed free from acid, if this be used for reddening. Let the fixing bath be rather large in quantity, *not too cold* in winter, and see that the prints are well worked about in it. Twelve or fifteen minutes would be a fair time of immersion. If bromides are the work in hand, see that the prints are likewise well washed front and back in running water before laying in the hypo pan, and do not hurry the prints out when once they are in. The mere disappearance of the yellowish tint of the unaltered bromide of silver is not proof that the print is fixed. Additional time should be allowed, just as in the case of negatives, which can not safely be removed from the fixing bath as soon as the shadows clear. Twenty minutes' immersion for the bromide prints would, in most cases, be none too long. The prints should never be allowed to stick together so that the solution will not pass freely between them, but, as we before said, they should be well moved about. Care must be taken that while doing this the soft gelatine surface is not injured or scratched. Silver prints will bear rougher handling, the albumen surface being thoroughly coagulated and hardened.

The first washing waters for both varieties of prints should be rapidly changed, and the prints not allowed to stick together in batches, or sink down to the bottom of the vessel and lie on the bottom. Neglect of this caution in silver printing often makes yellow prints.

ELLERSLIE WALLACE.

THE latest photographic novelty is thus noticed in the *Amateur Photographer* (London), which gravely informs us that the automatic photograph machine, of which M. Cheron is the inventor, and Messrs. Salter, of West Bromwich, the makers, is, mechanically, a success. The victim gets on a stand two or three feet from the machine, puts a penny in a slot, and looks intently in a small mirror just above the lens. The exposure lasts for a couple of seconds, when a small bell rings to indicate that "all is over." A noise of clockwork is then heard inside the machine, which indicates that the plate is passing through the developing, fixing, and washing baths. Then something is heard to drop into a small box in front of the machine, and on lifting the lid a portrait on a sheet of thin iron is seen—a "tintype," in fact. For a halfpenny dropped into another slot a gilt frame can be obtained. A party of capitalists, as well as of Pressmen, have been down to see the machine at work, and during this visit the machine "took" two hundred photographs with complete success. It is able to take three hundred before it requires re-charging. An electric light can be fitted for portraiture at night, if necessary. Patents for this machine have been secured in twenty-six countries.

AMATEUR EXPERIENCES.—III.

EDITOR AMERICAN JOURNAL:

I AM happy to say that I have a more cheerful report for you this month.

The usual monthly meeting of the Leopardville Camera Club was held on Tuesday night last, Rev. W. A. Lense, the president, in the chair. The secretary, Miss Carrie Kase, read a communication from the president of the Turkeytown Tripod Club, asking for an interchange of blue prints,—between the members of their respective societies. On motion the communication was laid over for further consideration.

The secretary also stated that illustrated catalogues had been obtained gratis from several dealers in photographic supplies for the use of the members. A vote of thanks was tendered the donors.

The Committee on Membership, through their chairman, Mr. Dense Fogg, stated that they were prepared to report on the three applications for membership, secured since last meeting. In the case of Hawk I. Keen, Esq., and Master Fritz Leberwurst, the report is in favor of the applicants, while on Mr. Aaron Shoptition the report was against the candidate, further that the report may be received, the committee discharged, and the candidates balloted for.

The motion had no sooner been made than quite an animated discussion started up. Mrs. Philomene Codaque asked what objection there was to the last named candidate, in this she was seconded by D. P. Tray and Miss A. C. Cessori, both active members of the club.

Mr. Fogg replied that Mr. Shoptition was merely a storekeeper, and that it was not desirable to lower the morale or social tone of the club by admitting a shopkeeper.

Mrs. Codaque, in reply, stated that no one could say anything against the character of Mr. Shoptition, and that he was enthusiastic on the subject of photography, and had already bought "How to make Photographs," and that was the kind of members that were wanted, even if they were shopkeepers.

Miss Cessori endorsed the previous speaker, and added that if Mr. Shoptition was elected he would at once procure a Model 4x5 outfit, and become an active member.

Mr. Snapschotte then ventured the question on what grounds the other two candidates were reported on favorably.

The chairman answering that as Mr. Keene was the wealthiest man in the vicinity, it would not do to offend him, although he knew no more about photography than the cow did of the moon, and cared less, but as a matter of policy he would have to be elected. As to Master Leberwurst, he was a youth whose indulgent father had bought him a 10x12 Waterbury outfit, and as it was the largest camera for miles around, it would be a good thing to elect him, so that the members could have his outfit to fall back on.

Mr. Eks Posure replied that what had been said was all right and well as far as it went, but one thing must not be forgotten,—and that was that almost every member of the club dealt with Mr. Shoptition for the necessities of life, and most all were in his debt. If we reject him he will stop our credit, and this was very important.

On motion of Mr. Rochester Ross, a vote was taken, and the three candidates declared elected.

Deacon Al. Bumen now arose for information. He stated that during the winter he had solicited subscriptions for an eastern illustrated paper, and in due time had received his selected premium, viz : a complete photographic outfit, as the circular stated, of the latest and most complete kind. In this model outfit the patent camera was so constructed that it done away with the use of any lens, a small rapid rectilineal hemispherical aperture taking the place of the lens, which, latter as the prospectus stated, was expensive, always unsatisfactory, and rarely if ever true. The patent camera was here shown, examined and commented upon, as were the two specimen prints which had come with the outfit.

The Deacon stated that he had exposed the whole of the six plates which were sent with the outfit, used the chemicals as directed, but only obtained a black leathery coating on the glass, in lieu of a picture. Now he wanted to know where the trouble laid, also if he could wash the plates so as to use them over again.

The President thought the plates were fogged during development.

Mrs. Codaque said that possibly the plates were overexposed.

Miss Kase asked the Deacon to describe his method of development, and give time of exposure.

The Deacon stated that he had followed directions; he had lit his yellow paper lamp, and put the plates in the holder, then set up the camera, focussed, then put in the holder, held his finger before the hole while he pulled the slide, then took his finger away, counted ten, and put his thumb on the hole, pushed in the slide, and went into the kitchen and tried to develop the plate; but it just turned black. He tried and tried again, but all came alike. He thought the plates must have been bad.

Mr. Snapschotte then asked him if he had carefully shut out all light before commencing to develop.

The Deacon replied that he did not think that was material, as his printed instructions only told him to open the package by his " ruby " light, and he thought that after the plate was exposed and the image was on the plate that he could develop it in daylight.

Mr. Fogg stated that there was the whole secret of the Deacon's failure, and requested Mr. Snapschotte to give the worthy Deacon some practical instruction in the development and manipulation.

The President then stated that Deacon Al. Bumen, who was an old man, deserved great credit for selecting the " Photographic Outfit Premium " for his literary labors during the past winter, and that it was the sense of the society that the youth of the community would do well to take pattern after the worthy Deacon in this matter as well as in other more serious ways, in which our fellow member stood as a shining light.

The Deacon in reply stated that as soon as he got in the way of taking pictures he intended to take the pictures of the sisters, to be sold at the next huckleberry party of the church, for the benefit of the cause.

At the close of the discussion Mr. Keene, one of the newly elected members, arrived and was introduced to the members, he was welcomed by the President and invited to a seat on the platform.

Several of the best efforts of the club were shown to Mr. Keene, who after examining them stated that they were only paper pictures, that the club was not up to the times, that lately a great discovery had been made in taking pictures, and he knew the man who found it out, and he was going to back him up, that where everybody could take pictures on paper, which would fade, and could be torn up, his man had found out how to " take 'em " on sheet iron which would'nt break, burn, or tear, it did'nt take any time to " make 'em," and the lips and cheeks looked as fine as any painting. The financial magnate of Leopardville here produced his " Iron Photograph," it was looked at with awe and wonder by the President.

Miss Kase suggested that it was a " Tintype."

The mere mention of this stirred the ire of Mr. Keene. " Excuse me, Miss, there's no tin about it, it is genuine " Rooshay Sheet Iron."

Mr. Snapschotte suggested that it certainly looked like a great invention, and inquired as to the probable cost.

Mr. Keene replied that, that was not a fair question, that he advanced money to the man to perfect his invention, and he expected to make a fortune out of the thing, but that they would sell pictures 3x4 in. at one dollar each.

Mr. Fogg asked if that was not rather high.

Miss Keene stated that tintypes were sold all over town as low as 36 for a quarter.

Mr. Keene at once put his foot down and stated that he wanted it decidedly understood that there was no tin about the invention.

To stop the discussion, so as not to anger our social magnate, fearing that if it went any further he might discriminate against our members at the next social reception, Mr. Fogg moved that the first outing of the Club take place a week hence if the weather prove favorable.

Seconded by Miss Kase, with the suggestion that the Club for the day resolve itself into an " Arbutus party."

Adopted unanimously.

On motion adjourned. J. FOCUS SNAPPSCHOTTE.

NEW FLASH LIGHT FOR PHOTOGRAPHING.—At a regular meeting of the Washington Chemical Society, held recently, Dr. Thomas Taylor, of the United States Department of Agriculture, exhibited a new flash light intended to take the place of several kinds which have of late proved highly dangerous in practice. The composition of Dr. Taylor's new flash light consists largely of charcoal made from the silky down of the milk weed, a form of carbon which he prefers to all others, because of its freedom from ash. A few grains of this new composition placed on tissue paper and lighted by a punk match produced a prompt and blinding flash, while it was observed that the paper on which the powder rested was not even scorched. The flash being instantaneous, the heat is not sufficient to ignite the most inflammable material on which the powder may rest. Dr. Taylor demonstrated this by using, with the same paper for a base, an inferior flash light, which set fire to the paper at once. This is owing to the comparatively slow combustion of the chemicals used in the inferior grade. Dr. Taylor said that the powder of his new flash light will not explode either by concussion or friction.

THE "CROTONWANZE" ONCE MORE.

WHEN we sounded our note of warning in the January JOURNAL respecting a fresh danger that threatened the American dry plate industry, we had but little idea that the matter would become one of international importance, therefore it is with pleasure that we inform our readers on both sides of the ocean that the incipient danger has passed, the dark clouds have been dispelled, and once more the photographic horizon is clear and bright without the least sign of fog. In reply to our query in the March JOURNAL, Dr. A. Miethe, of Berlin, the well known editor of the *Photographisches Wochenblatt*, in No. 17 of present volume, answers: viz.—

"Our friends in America have shown much pleasure that we so well understood their Cimex joke, as set forth in our Letterbox notice;—as our readers will no doubt recall the fact, that at the time we referred in our "Repertorium" to an article from an American newspaper in which mention was made of a mythical insect, which had developed an especial appetite for the American dry plate. Under these circumstances we could not refrain from warning our readers against the use or purchase of any American dry plates, so as to prevent the introduction of this dreadful insect, which threatened to prove more destructive than the Colorado potato beetle, and if possible to obviate this great danger. Immediately afterwards there appeared in an American magazine * a well meant sally against German thoroughness and credulity.

"In reply, we mentioned seriously as the occasion offered, that an organism outside of the Crotonwanze did exist,—a fungus, which formed on damp gelatine dry plates, and that in the process of formation, growth or existence, so changed or affected the photographic proprieties of the affected plate that after exposure and development such plates showed numberless transparent spots, and consequently were rendered useless. We suffered heavily during the past summer by the appearance of these organisms," writes Dr. Miethe, "and only overcame the difficulty by a thorough disinfection of our dark chest with carbolic acid, and fumes of bi-chloride of mercury. The plates which had been thus affected, as a matter of course were lost or spoiled, and herein the friendly editor of the AMERICAN JOURNAL OF PHOTOGRAPHY has misunderstood us.—(Vide *Am. Jour. Photog.*, March, 1890, p. 89).

"We hope," continues the *Wochenblatt*, "that the little bug which threatened to assume the proportions of an immense sea-serpent has been scotched or decapitated, a 'Prozedur' that we are glad to have aided in accomplishing." We of the AMERICAN JOURNAL OF PHOTOGRAPHY also claim a share of the glory in bringing about this end, and thank Dr. Miethe for his courtesy and information, and close with the good old motto, "*All's well that ends well.*" J. F. S.

CLARA—"Well, Aunt, have your photographs come from Mr. Snappeschotte's?"

Miss Maydeval (angrily)—"Yes. And they went back, too, with a note expressing my opinion of his impudence."

Clara—"Gracious! What was it?"

Miss M.—"Why, on the back of every picture were these words: 'The original of this is carefully preserved.'"—*Pittsburg Bulletin.*

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* AMERICAN JOURNAL OF PHOTOGRAPHY, January, 1890.

PHOTOGRAPHERS IN PARIS—THEIR STUDIOS AND WORKSHOPS.

M. CHALOT catches the sun at 18, rue Vivienne, where a small window shows off a few of the platinums by the firm. Through a courtyard and upstairs one arrives at a grand "reception" room, which it would be hard to equal. It is preceded by a tiny entrance lobby for coat and hat-racks, and made pleasant by plants in boxes. The beauty of this fine receiving-room consists above all in the exhibition of the platinum prints, mingled judiciously with the carbon and silver portraits and colored enamels. A microscopic examination shows them to be soft pictures, ranging from pure white to positive black, and indescribably soft in the vignetting, as if they were on opal. Another paper has deep brown tones called "Japon." Some of the prints are water colored, and the most æsthetic English water-color painter would find nothing to criticise here, so thoroughly good is the work. M. Chalot claims the platinum process worked by him to be a special one, and his formula is kept secret. To produce such photographs is indeed worthy of a patent. He rightly terms the ordinary process a coarse and unsatisfactory one, and there is certainly no comparison between the two. It is the more tantalizing to find his negatives extremely thin, such as would give nice prints with aristotype paper. Evidently the restraining solution in the platinum salts accommodates, by the quantity used, a mere phantom of a negative. No trouble is taken to make special *clichés* for platinum printing—rather the reverse. He prefers Guilleminot's plates above all others, and always uses oxalate developer. The paper is almost orange color when sensitized, and resembles the ordinary material. In the rooms for preparing it are the usual glasses for spreading out and coating the sheets, properly constructed drying box, and large trays on tressles for developing, etc. The printing room is a model of its kind, and fitted at sides and roof with white blinds to foil the sun. His studio is small, but all sufficient, and "poses" are made at either end. It has blinds that roll up from the bottom or down from the top of the side windows; otherwise, the horizontal two-feet wide sliding curtains, etc., are the same as with other ateliers. A very fine instrument is the camera by Jouté—about fifteen inches square—the lens being a Voigtlander. Each of the usual departments is arranged with more thought than is noticeable in many houses. The dark room is not very large, so the plates are taken to the well-lighted toning rooms to be washed, and here they are placed upon a slatted frame, like a flight of stairs, over the wash-tank. At the top is a long pipe with fine holes. From this the water "sprays" on the top row of plates, and falls by gravity on to the next, and so on to the bottom. The tanks for toning, fixing, and washing resemble slate, and are neatly fixed all round the rooms at the same level. For washing the prints a guttapercha sheet, perforated with large holes, is fixed at half the depth of the tray, and a swan's-neck-pipe in the tank discharges *under* this sheet, so that the water is always rising through the holes underneath the prints. To spill water about the floor matters nothing, for it is completely leaded, and has a covering of open wood framework. So cheerful a spot is not often found in a photographic workshop. For enlarging, a complete apparatus is installed, with means for making the oxygen used—a holder four feet by twenty inches diameter being filled in three-quarters of an hour. In same room as last apparatus are the wash-troughs, boiler, etc., for carbon. Enamels appear to be their chief work in pigments. Daylight enlarging apparatus is complete in another room elsewhere. Near to the two printing rooms is a case with glazed front for use of printers to place negatives for, or out of, print, and are thus contained in grooves instead of being left in frames or filled up in the workshop. Complete as are the other departments, remark is only necessary on the office, which surprises one directly on leaving the magnificent reception or show room, for here behind the curtains a counter of the most uncompromisingly business style is found manned by three clerks. It has been noticed in some establishments "Payments positively in advance," and the business-like "caisses" in others certainly leads one to think that a photographer might be "left," like a tailor, without proper precaution. Hence the necessity of ostentatiously introducing the desk in some place where customers are bound to pass.

On the Boulevard de Capucines, opposite the junction with that English street rue Scribe, is located a very well-known and high-class house, formerly Van Bosch, but now Paul Boyer. English visitors soon know it as a place at whose entrance are seen very remarkable photographs of stage scenes, made by aid of the magnesium light, and of artistic studies of actors in costume. These are a striking feature also in the pretty reception room, but the excellent portraiture shows it to be only a branch. A decidedly novel idea is observed in the reception room of this "bijou" establishment, a large aviary at the end of the room, formed by netting off the whole width, a painted background, rockery, fountains, plants and rare birds make an agreeable scene, to which the sitters wander instinctively, and there behind the curtains find a small clerk's desk, excellent thought! Bronze vases, lounges, divans, and curtains are not lacking in this elegant place, and his patent "photo-glora" transparencies decorate the windows (bromide transparencies surrounded by dried natural flowers on the backing glass), and special Boyer stereoscope, whose large square glasses bring out the relief in photographs with remarkable power while looking through them at a foot or more distant from the eyes.

A double staircase runs up immediately into the posing gallery. Here a good north light is obtained, with side windows overlooking the street. Ilford plates are used with lenses of his own combination. Artificial light for exposure is always available, but not much required. A short passage brings one to the dark room where gas is laid on in the lantern; a corridor is stocked with negatives in shallow boxes; sensitizing, toning, and washing rooms are just under the printing roof, and on the latter the superb printing of Boyer's goes on with very ordinary apparatus. Yellow curtains are hung over the "filling-in" place for silver, and the bad light in which this operation is often carried on is unknown here, to the greater convenience of the *employés.* Another small room out on the open is reserved for the platinum frames and filling-in. The London Platinotype Company's paper is used as being the best, and is bought ready prepared. Carbon is sent out of Paris, as per the London practice. M. Paul Boyer, besides his remarkable theatrical scenes, is an expert in outdoor instantaneous work, as when the President journeys about France on state celebrations, M. Boyer photographs him in the midst of the thronged celebrations from off steamers, quays, roofs, and bridges, in spite of rain and wind, and on plates of about ten inches by fourteen inches, with a Ross lens and Hare camera. A glance over the work shows intrepidity and skill of the operator, and these views are reproduced afterwards in the form of a book with text. The really wonderful views of distinguished companies in the Elysée were made by his own magnesium apparatus, called "Boyer Eclair," and so far they remain in advance of anything ever done yet. Honor alone remains the chief remuneration for these numerous works made out of the studio. M. Boyer has held the business since 1886; he is young, with indications of a determined will, and in appearance decidedly English, but he has an elder *confrère* who approaches that very much more—verbally.

M. Bannel's studio on the Boulevard des Italiens is well-known, and was the former establishment of Disderi. It is small, but shows many good points, as is very often found to be the case where the photographer is his own operator, and takes a thorough interest in all details of the business. Very pretty carbon prints and "blocked-out" platinums attract especial attention. In the former he makes his own special tissue in every imaginable color that is pleasing to the eye for portraits, and the artistic appearance of his prints is said to be possible only by his process. He does not know of good commercial tissue, but considers the Autotype Company's the best. Studio has the usual form of French roof ridge, extending whole length of the gallery, and fitted with two-feet curtains sliding on a great number of light wires also running the whole length of room, permitting a variety of light effect. Dallmeyer is his favourite lens. The dark room at end of studio is lighted by a lantern, the round top of which lifts off with the bulb of a powerful incandescent light, so that it can be hung up whenever needed for general illumination. Ilford plates and potash developer are the results of his trials of many kinds. The washing room for carbon work runs across at the other end of the studio. Here in a neat, orderly place are conveniences in the shape of moveable trays that permit of working an exceptionally large size in a small space. A boiler of ample capacity is heated by a number of perforated gas tubes. His experience for treating badly over-exposed prints is not to soak them with hot alkaline water, but to gently run the hot water over the dark place, at the same time dropping a solution of ammonia in the stream. Development is concluded with alcohol—an old practice. Sepia and red chalk are the colors most preferred. Carbon, silver, and platinum go on above this last place, but this, as well as the other offices, present nothing specially noteworthy. M. Bannel evidently regards his work with something more than a desire to meet expenses.—*C. R. K., in Photography* (London).

IN an interesting paper which Captain W. de W. Abney contributes to the London *Graphic*, in which he mentions a number of things as "what photography will not do," he states: "One more point is that photography can never be strictly truthful as regards light and shade. If the high lights in a photograph be accurately depicted on a paper print, the shades will be found wanting in correctness. This is an inherent defect in photography, even when black and white only have to be reproduced. But besides this we have another inherent defect, in the difficulty in portraying colors in proper relation to one another. A photographic plate is more sensitive to some colors than it is to others; and although modern improvements have lessened this defect, and may still further minimize it, yet the want of truth of rendering shades correctly must always remain. Perpetual motion will probably be a thing of the past when truth in photography is still non-existing."

A NEW HALF-TONE BLOCK PROCESS.—The ordinary method of producing half-tone printing blocks is tedious and uncertain; tedious on account of the many operations necessary; uncertain because of the ever-varying strength of the light, and the low degree of sensitiveness of the substance used for printing the resist image upon the zinc.

This uncertainty renders it almost an impossibility to undertake etched half-tone blocks strictly to time; the fine screens used for the best work entail very careful printing, the use of a quality of paper and ink quite out of question for cheap and rapid printing, and if the grain is coarser to suit coarser paper and greater speed, the half-tones are quite lost, and the result far from good.

These drawbacks are *all* removed by a process invented by Mr. Sutton, of Ballarat, Australia, by which printing blocks in half-tone can be produced with certainty in a few hours, as the relief matrix is a gelatine plate.

These blocks for quick printing are wonderfully deep, and may be printed with good results where an etched half-tone block would entirely fail.

The process is wonderfully ingenious and simple, and is as follows:—From a photograph, or a washed drawing, or an original subject, a grained negative is made upon a gelatine bromide plate; this negative, after fixing and washing, is subjected to heat, and at once converted into a relief matrix, from which the printing block is made in the form of an electrotype,—in itself the best form of printing surface known. The time occupied from beginning to end will not much exceed that necessary for making the electro.—*Photography.*

THE Cramer Dry Plate Company have published a pamphlet giving a series of new formulas, which in their hands has proved to be best adapted for their make of plates. We recommend this pamphlet to the notice of all photographers.

BLUE PRINTS ON ALBUMEN.—J. T. M., in the *Scientific American*, says: "Very pretty effects may be produced by printing on ordinary albumen paper, sensitized with the following solution:

Citrate of iron and ammonia	3¾	drs.
Dissolved in water	2	oz.
Red prussiate of potash	2½	drs.
Dissolved in water	2	oz.

Mix equal parts just before using, as the mixed solution will not keep, and float the paper as on the silver bath, film down, for half a minute or so, and suspend by one corner in a dark room to dry. Detail can be brought out almost equal to silver prints, while the ease of working and the cheapness make it quite desirable. The prints can be mounted and burnished. Do not try to keep the paper sensitized, but make up fresh when wanted.

GROUNDGLASS.—To obtain a fine groundglass, proceed in the following manner: Fill a cup half full with water, add some emery, agitate the whole, and, after reposing five minutes, decant into another cup; at the end of the same space of time again decant into a third cup. There will remain each time in the cups emery of a different size. Commence the operation with the coarsest to finish with the finest. In this way you will obtain a semi-transparent surface upon which it is possible to trace the most delicate lines.—*L'Amateur Photo.*

PHOTOGRAPHY—THE SCIENCE AND THE ART.

WE often hear photography spoken of as the Art-Science, a combination of terms which seems somewhat contradictory, but which is really most comprehensive and accurate. Science has been defined as " knowledge reduced to a system," and when examined from this standpoint, both in its details of operation and in the methods of its application, photography may fairly claim to be one of the most exact branches of science. It is indeed not without its experimental side, in common with all branches of science, but in the present acceptation of the term the camera is as much a scientific instrument as the engineer's transit or level, and for scientific purposes its uses may be acquired as methodically.

The application of the camera and its work to scientific pursuits has, however, not generally been regarded altogether as legitimate as some other instruments, and for a rather curious reason, namely: that it is rather an artistic than a scientific instrument; while at the same time the artist is sometimes disposed to give the camera the cold shoulder because, forsooth, it is a scientific instrument; and so, while claiming to be an art-science, photography flits midway between the two camps, like the bat in the fable, and is not fully accepted by either side.

Now, photography is really a science, and is also as thoroughly an art as is any other division of that much-abused term; but it is not both at the same time, and without reopening an old discussion or stirring up old antagonisms, it may be worth while to examine somewhat the difference between the scientific and artistic applications of photography.

When the discoveries of Daguerre, and Niepce, and Talbot first made photography practicable, the immediate thought of every one was of its application to portraiture; and even to-day, if one speaks of a photograph, without any further definition, it is generally understood to mean a portrait. Landscape photography, before the introduction of modern dry plates, was so little followed as to be of minor importance, and with the exception of some professional work in architectural photography, the artistic side of photography was mainly limited to portraiture.

Since the advent of the amateur into photography, however, we hear much more about photography as an art, and the ease with which the operative details of manipulation are mastered has made it possible for men of cultivated artistic tastes to exercise talents which might otherwise have remained purely critical. The result has been the development of what may properly be termed a "school" of artistic landscape and group photography, consisting of a number of earnest men of true artistic taste, whose time and opportunity have not permitted to acquire the technical skill with the brush or crayon or etching needle, which in former days would have been necessary to make their talent evident, but who can with the aid of the camera show their ability and gratify their own artistic sense in a manner otherwise unattainable.

Dr. Emerson, to name but one, has amply demonstrated by his published works how fully comparable the work of the camera may be made to the work of the needle and acid; and there are not wanting to-day those who openly express their preference for photograph to etching. The details of the latter process are quite as mechanical as those of the former, and the absence of color is chargeable to both alike, and to what extent the public opinion upon the subject is due to the influence of unreasoning fashion, the reader can judge.

The artist photographer does not use his smallest stop for the purpose of obtaining the painful microscopic sharpness of definition which the mechanical taste may deem essential; he does not need to be taught any cast-iron rules about the direction of the light, or the introduction of the inevitable foreground stump. When his negative is made he does not improve (?) it by printing the sky full of clouds whose lighting gives the lie to every shadow in the picture. Indeed, his work is as marked by what he does *not* do as it is by what he does, and if he succeeds at all in any degree, he succeeds in leaving the impress of his own taste upon all his work.

Turning now to the use of photography as a science, it will be seen how different and yet how legitimate its claim to the title may be made.

Probably the use of the camera for astronomical purposes is one which would first suggest itself as a scientific application; but as a matter of fact stellar photography—while most valuable and interesting—can scarcely lay claim to the highest place under this head. The modern science of Photogrammetry, using as it does the image on the plate in connection with measured horizontal and vertical angles, the whole to be combined with a similar record made from another standpoint to form an accurately plotted survey, is a far better example of the use of photography as a science. So, too, the boundless field of photo-micrography, and the use of the camera as a record for scientific experiments whose truth is beyond impeachment—these need only to be mentioned to be recognized as scientific uses totally distinct from the artistic use of photography.

The distinction between the two terms can readily be kept in mind, and if the artist would only remember that the camera belongs to him as an instrument of his art as much as do his brushes and his pencil, and if the engineer would also recall the fact that the same pencil which he uses for his accurately drawn diagrams may in the hands of the artist produce the sketch of a masterpiece, there would be less discussion about the meaning of art-science. H. H. S.

A POWERFUL LIGHT.—We quote from the journal of the French Photographic Society the following recipe for a pyrotechnic mixture, credited to the *Chemiker Zeitung*, which is said to make a light visible at a distance of one hundred kilometers in clear weather. The ingredients are as follows:

Magnesium powder	20 parts.
Nitrate of baryta	20 "
Flour of sulphur	4 "
Beef suet	7 "

Mix the different materials in the melted suet, This amount, moulded in a box of zinc, one tenth of a metre in height and seven one-hundredths of a metre in diameter, will burn twenty seconds with a light equal to 20,000 candles. The weight of the whole is about a pound, and as the magnesium amounts to about one-third of the weight, it will be easy to calculate the cost of this powerful illuminant, which may be able to render service to photographers under certain circumstances.

A PHOTOGRAPHIC CONTRAST.

THE particular aversion which President Harrison has to having his photograph taken, or his portrait drawn, has of late become the subject of much comment in the daily and weekly press. A number of efforts have been made to persuade him to sit for a picture amid the surroundings in which he is daily found in the White House, but they have proved of no avail. He sat for some pictures to the regular Washington photographers when he came here first; but lately he has refused to give any sittings to any one. In this idiosyncrasy he is naturally followed or imitated by his subordinates—particularly the Postmaster General, who has developed an equal aversion to being photographed, and has steadfastly refused to sit to the lacal photographers since his superior has set the example. This peculiarity of the present Republican Court was lately made the subject of a cartoon by *The Judge*, which represents the Cabinet officers on their way to the White House clad in the "Anti-photo Gown," a long bathing robe, with a cowl drawn over their faces, to the evident discomfiture and extreme disgust of the Kodak fiend who was waylaying the party. So much for the Land of Freedom. In Europe photography stands on a different basis—our art being encouraged and patronized by the ruling sovereigns. In Austria the Club of Amateur Photographers is under the direct patronage of her Serene Highness, the Grand Duchess Marie Therese, who takes a personal interest in the work of the members, and on February 1st of present year presented two of the members with a gold Maria-Theresa medal for their proficiency.

So great is the interest the Emperor and Empress of Germany take in practical photography, that on the tenth of last April Herr Ottomar Anschütz was invited to produce some of his studies of wild beasts, acrobats, manœuvering troops, running animals, and other living subjects, in connection with his improved Zoetrope or "Lebensrad," after which the photographic chemist, Dr. Adolf Hesekiel, was invited to show his platina paper and flash-lamp, and explain to the assembled company how photographs can be taken without daylight. Dr. Hesekiel first exhibited several platina prints in different stages of printing, which were greatly admired for their softness, then, by invitation of the Emperor, Count Pückler was first photographed by the Blitz-pulver, the flash startling the company. The Emperor then asked his Consort to give a sitting, but as the Empress declined, the Emperor himself posed. Their Majesties were highly pleased with the results, and expressed to Dr. Hesekiel the pleasure the demonstration had given to them.

J. F. S.

REPRODUCTION OF NEGATIVES.—At a recent meeting of the French Photographic Society, M. E. Vallot showed a successful contretype in china ink, produced as follows: A glass plate had been coated with bichromated gelatine and exposed under the negative to be reproduced. It was then developed in water, holding in suspension a sufficient quantity of china ink, when the parts not acted on by light softened and absorbed the evolved liquid, while the parts hardened and rendered insoluble remain clear. Other insoluble coloring matter may be used as well as china ink, so long as it is stable under the action of light.—*The Beacon.*

AN ENNOBLED PROFESSIONAL.

IT is with pleasure that we announce to our readers that Herr Fr. Voigtlander, head of the firm of Voigtlander und Sohn in Braunschweig (Germany), whose name is known to almost every photographer throughout the civilized world, has been the recipient of a fresh honor. It has not been so long since he was raised to the Order of Knighthood, and now the Emperor of Austria, in appreciation of his great services to the photographic world, has conferred upon him the Ritterkreuz of the Franz-Joseph-Order. We congratulate Herr Ritter von Voigtlander, and trust that he may bear his honors meekly, and that the glitter of the knightly star upon his manly breast will not prevent him from continuing in his efforts to give us a perfect photographic lens. Further, that the escutchion of the new Baron Euryscope von Voigtlander may never be fogged by the Bar-Sinister, and that the results of his labors may always prove absolutely rectilineal and free from distortion, with a flat field and sharp definition. ADOLPHE.

PHOTOGRAPHERS AND CROWDS.

CROWDS, especially of street boys and street girls, have been the deadly enemies of architectural photographers for all time, and many have been the devices for clearing an open space in front of the camera. One of the most time-honored is that of mounting a large lens at the back of the camera to draw the crowd in that direction, while the view really desired is taken by the small lens in front.

A few days ago two English photographers planted their cameras on opposite sides a deserted space in Ghent to take an adjacent church; instantly, of course, children dropped from the clouds, emerged from the earth, concentrated from all possible directions, and each operator had his crowd around him. One of them folded his arms, leant against a wall, and gazed steadfastly at his friend in the distance. The children soon became tired of gazing at an operator doing nothing, then cleared off to watch the more active manipulator; the first one, thus relieved, made his exposure.

The same day, when taking another view, one of these photographers discovered that a boy in the crowd prided himself on his dancing; that boy was immediately offered the sum of one penny to dance several yards behind the camera. The delighted boy entered into the contract, and executed a kind of Belgian "fling" which drew the crowd to the back of the camera.

The view was then taken.

In the old cities of Belgium and Holland architectural photographic work is somewhat more easy than in towns in England, because there are so many canals and rivers about. For this reason numerous picturesque views are obtainable when the lens is pointed over the parapet of one or other of the bridges.—*The Photographic* (*London*) *News*.

A NEW SOCIAL FANCY.

ONE of the latest fads of social swelldom is the " Trousseau Album," and although it has been mercilessly ridiculed in various quarters, we think the idea will increase in favor, and that it has come to stay. An album of this kind, even if not as extravagantly gotten up as the one here described, will without doubt always be an object of interest and curiosity, the more so as the years elapse. To a family in which it descends as an heirloom its value cannot be measured by money ; while to the student of history and social philosophy a work of this kind—a century hence—would prove a perfect storehouse of information.

To properly arrange an album of this kind is not an easy task, as it requires not only good judgment on the part of the photographer, but of the modiste and binder as well, to which must be added a liberal outlay of money.

The specimen which came under the notice of the writer was a perfect specimen of its kind. Sufficient funds had fortunately been left the family, after securing the titled foreigner as a husband for their daughter, that they were free to indulge in this whim of the bride. The album was handsomely bound in Turkey morocco, and fastened with gilt clasps. On the corner was emblazoned a gorgeous crest and coat-of-arms in gold, silver, and bronze. The inside of the cover was lined with heavy watered silk, as was the fly-leaf, which protected the illuminated title pages. Then followed on opposite pages a portrait of the bride and her foreign consort. On the next left-hand page was a full length photograph of the bride in her wedding dress, veil, orange blossoms and all, just as she had stood before the altar. Opposite, on the right-hand page, a dress similar to the photograph was constructed in miniature of the identical fabrics, silks, satins and laces, as was the original; even the garniture of orange blossoms being painted on the model. This was protected by a deep hinged mat, made of the finest pebble board, with gilt beveled edge. The next picture represented the bride in her tailor-made travelling dress, which was worn on the wedding tour immediately after the ceremony. On the opposite page we again had a miniature model of the original fabric, showing the colors and materials, which could not be reproduced by the camera, and so on through the whole category. Evening dresses, street costumes, house robes, followed one after the other, through the whole list of troasseau, the pose of the bride being varied in each picture so as to show off the dress and its fair wearer to the best advantage, while on the opposite side was to be seen the exact model of the identical fabric, always, of course, protected by the deep mat. The whole album did credit to the different artists who were engaged on it.

PHOTOGRAPHY AND METEOROLOGY.—At the meeting of the Royal Meteorological Society last week, in London, Mr. G. M. Wipple, B.Sc., F.R.A.S., read a paper on "A Brief Notice respecting Photography in Relation to Meteorological Work," in which he said the first person to use photography for obtaining meteorological records was Mr. J. B. Jordan, of Falmouth, 1838. Some years later, Sir F. Ronalds and Mr. C. Brooke devised more complete and elaborate apparatus, the arrangement of the former being now in use at the observatories of the Meteorological Office, and that of the latter at the Royal Observatory, Greenwich. Reference was also made to Mr. J. B. Jordan's form of sunshine recorder.

Captain Abney's photo-nephograph was then ably described by Mr.Wipple, who prefixed his remarks with the statement that the apparatus had not yet been fully developed. He then went on to state that the object of the photo-nephograph was to obtain simultaneous instantaneous photographs of the same cloud from two or three stations situated at a distance of half a mile and upwards from each other. These simultaneous pictures are then utilized for determining the positions of clouds above the surface of the earth, and so obtaining a knowledge of the upper currents of the air, their direction and motion, at heights, far above those at which anemometers can be placed, and in places where they may be supposed to be unaffected by the irregularities and eddies formed by excresences, such as hills and valleys, which modify the contour of the earth's surface. At Kew, two cameras fitted to theodolites are erected on stands half a mile apart, but electrically connected with an underground telegraph wire. Each camera is provided with an adjustable instantaneous shutter, which can be manipulated by an electric current at the will of the directing operator. The *modus operandi* is as follows : A first points his camera at a selected cloud, and then having instructed the observer at the remote station B, through a telephone, as to the direction in which he should place his instrument, releases both shutters at the same instant of time, so obtaining a pair of pictures in which the stereoscopic effect affords the required data.

The various other photographic processes and apparatus which have been employed in connection with these instruments were fully described. Mr. W. Marriott, F.R.M.S., also gave a paper on "Application of Photography to Meteorological Phenomena," showing how photography could be most usefully employed for the advancement of of meteorological knowledge. Much valuable information had been recently obtained from photographs of lightning and clouds. An interesting collection of such photographs was shown on the screen, together with others illustrating floods, whirlwinds, tornadoes, hailstorms, frost, snow, etc. After the reading of these papers, the meeting was adjourned to allow the Fellows to inspect an exhibition of instruments, etc., illustrating the application of photography to meteorology.—*Photography.*

STELLAR PHOTOGRAPHY.—The *British Journal of Photography* states in an article on above subject that in photographs of the stars the coincidence of the size of the star discs on the negative with their reported magnitudes is by no means a simple matter to explain ; indeed, at one of the meetings of the Royal Astronomical Society, a speaker of note said it must be looked upon as a wise dispensation of Providence ! But, from a paper read at that Society's meeting in March, it would seem that the reported magnitudes are by no means of the exact nature that might be expected from the mode in which they are repeatedly referred to. In an interesting and valuable paper by Dr. E. J. Spitta, respecting the Wedge-photometer, he described how he had devised a method for producing discs of light of one, two, three, up to eight units of intensity, and when he valued them with the Wedge-photometer and Abney's photometer respectively, there was a variation of fifty per cent. The result of these experiments indicated, said Captain Abney, that all Professor Pritchard's measures of the magnitude of stars would require to be altered.

That in our own country this special line of study is not neglected, may be seen by the fourth annual report of "The Photographic Study of Stellar Spectra, conducted at the Harvard College Observatory," under the direction of Prof. Edward E. Pickering, as a memorial of the late Dr. Henry Draper. The first investigation undertaken was the formation of a catalogue of about 10,000 stars north of —25°, and in general brighter than the seventh magnitude. This is nearly completed. The second investigation relates to the spectra of the fainter stars and photographs with exposures of an hour have been made of nearly all parts of the sky north of —25°, several thousands of these spectra having already been measured and identified. About a year ago an expedition was sent to Peru to undertake the examination of the southern stars, and very considerable progress has been made. Photographic charts of the entire sky south of —25° were first obtained, using the Bache telescope, with exposures of ten minutes, and showing all stars brighter than the tenth magnitude. A second set of charts having exposures of an hour, showing stars brighter than the fifteenth, and two similar series of photographs of spectra, are taken with exposures of ten minutes and one hour, so that at least eight photographs will thus be obtained of all the brighter stars. The total number of photographs so far obtained is 7883, and the report concludes with the statement that the progress thus far made in the work could not have been accomplished without increased aid on the part of Mrs. Draper.

COPYING TRACINGS, BLACK LINES ON WHITE GROUND.—Cola's process, which gives a black line on a white ground, is now greatly in use for copying tracings. It prints quickly, and is very simple to work. The exposure ranges trom five to ten minutes in the sunlight, and from twenty to forty minutes in the shade. I find the best results are got on a bright day and printing in the strongest light. I have very often to reduce large drawings made on yellow tracing paper to a small scale to transfer to a stone for lithographic purposes, and use this process to get a more suitable copy to photograph from. To make a print, you put the tracing face downwards in the printing and place the sensitive paper on the top of it, then a piece of thick felt, and then the backs, and put a good pressure on by means of screws, which are much better than springs, as you are able to get a more even pressure. To ascertain if sufficiently printed, lift up one corner, and if the greenish yellow tint has disappeared, except where covered by the lines, it should be taken out and immersed, face upward, in a bath composed of gallic acid 20 parts, alcohol (methylated) 200 parts, and water 1,000 parts, and remain for three minutes, at end of which time the lines will be up strong and black. It should then be thoroughly washed in running water for a quarter of an hour, and surface rubbed with a soft sponge, then taken out and hung up to dry. The following will be found a good formula for sensitizing the paper:

Water	300 parts
Gelatine	10 "
Perchloride of iron	20 "
Tartaric acid	10 "
Persulphate of zinc	10 "

Apply this by means of either a broad, flat camel-hair brush or a fine sponge to a hard, well-sized paper, then hang up to dry in a dark room. To over-expose a print means losing the lines, and under-exposure gives a very dirty, neutral tint ground and very faint lines.—*Scientific American.*

THE PHOTOGRAPHIC SOCIETY OF PHILADELPHIA.

A STATED Meeting of the Society was held Wednesday evening, June 4th, 1890, the President, Mr. John G. Bullock, in the chair.

The Secretary reported the receipt of a copy of the *Photographic Times* Annual for 1890, presented by the publishers; also a number of books on photographic subjects from Mr. F. H. Rosengarten, for which votes of thanks were passed.

The Executive Committee reported that on the evening of May 21st, by invitation of the Committee, a lecture had been delivered before the Society by Prof. Wallace Gould Linsin, of Brooklyn, N. Y., on the Photography of Self-Luminous Subjects. The lecture treated principally of photographing pyrotechnic displays, and was illustrated by a number of interesting lantern slides.

The Committee on Lantern Slides announced that the Interchange Lantern Slides from the Louisville Camera Club would be shown after the meeting.

Mr. John Carbutt, Jr., who had been one of the photographers attached to the U. S. Scientific Expedition to West Africa for the purpose of observing the total eclipse of the sun in December last, gave an interesting account of the trip, with extracts from the bulletin published on board the U. S. S. Pensacola, by authority of Professor Todd, director of the exhibition.

Mr. John Carbutt illustrated by the aid of the optical lantern the development of a dry plate. The development and fixation were performed in a glass tank of a dark orange color, placed in a lantern, the operations being plainly shown on the screen.

Adjourned. ROBERT S. REDFIELD, *Secretary.*

POSING FOR A PHOTOGRAPH.—Don't wear a silk frock. Nothing comes out so badly as the gloss of satin or glimpses of silk. Instead choose wool or velvet. If you are young, wear a white gown. Remember that gray takes white, and yellow or tan becomes black, so that with your white gown you must have white gloves. Lace always comes out very well, and furs are artistic. Do not fix your hair in any elaborate way, and remember you are posing as a lady and not as an actress. If you have any freckles the artist will, if he is a good one, spot them out, and if your hair is really light, put a little powder on it with powder-muff, and it will take its natural color.

Unless you are one of the people who can smile naturally to order, do not attempt to look pleasant, for the result is too often that seen in the picture of somebody just sitting down in the dentist's chair. For a full-length picture, throw your body, from the waist up, a little bit forward. Remember that a bonnet in fashion to-day will be out of style a year from now, and that, unless your pictures are only for the time, it is better to have them taken without a chapeau, says the Albany *Journal.* If you want to see a picture that could nowhere be mistaken but for that of a lady, look at those of the Duchess of Fife—not pretty, but refined looking. She inherited much of her mother's good sense, so that she has a photograph taken in a simple woolen gown, standing beside her hnsband, not in a dramatic fashion, but just as a lady might and does stand.

OUR ILLUSTRATION.

OUR illustration is taken on the shores of the river Delaware, a few miles below Philadelphia. The fishermen run out a net about three miles long, one end of which is drawn in by a windlass with horse-power, the other by ten or a dozen men. At the start the two ends are a half mile apart. While the net is being drawn in, the men walk slowly along toward the other end. It usually takes them three to four hours to land the net. The haul of shad varies from a very few up to fifteen hundred, all depending on the height of the season and the run of the fish. Three hauls are made during twenty-four hours. The fishing grounds are so valuable that the owners frequently receive as much as one thousand dollars for the use of the grounds for a season.

PHOTOGRAPHISCHER ZEITVERTREIB, MIT HILFE DER CAMERA. By Herman Schnauss (Dusseldorf: E. Liesegang Verlag). Translated into English, "Photographic Pastime, by Aid of the Camera." This work, although in the German language, is so fully illustrated as to be intelligible to readers who know but little of the language in which it is published. It is divided into five parts, under the headings: Specialties, Curiosities, Photography with Ordinary Expedients, Photo-Optical Entertainments, and Specimens of Photographic Printing. This peculiarly interesting book deals mainly with the various photographic freaks or curiosities which have been mentioned in the various photographic publications during the past two years, while a portion of the work is devoted to solid instruction, on flash light, animal studies, flower work, etc., the major part of the work describes the methods by which photography may be used as a pastime, such as making doublets, caricatures, ghosts, magic luminous, composite, and spirit photographs, and a host of kindred subjects, to produce abnormal effects and to entertain a company.

The compiler of this work has succeeded in bringing together a great deal of matter not usually found in a photographic manual. The work will prove especially interesting, and a useful companion to our lady amateurs.

PRINTING FROM NEGATIVES OF STRONG CONTRAST.—One way I have used, and it is very successful, is to gum a piece of tissue paper over the back of the negative at the edges. Over the dense portions the paper is cut away, and over the clear parts it is worked on with a lead-pencil. In very extreme cases I paint on the tissue paper with some transparent non-actinic color, such as burnt sienna, instead of the lead-pencil. Another way, also very good, is by means of local reduction. This must be done before the negative is varnished, or else the film of varnish must be removed with methylated spirit. Any good reducer will do, but I have been most successfu with two, and it must be applied with a small camel's-hair pencil. The first is ferric chloride. A solution of this containing 15 grains to the ounce of water is painted over the dense parts with the brush ; the negative is then swilled and placed in the hypo bath. If the reduction is not sufficient, the operations are repeated till it is. The second is a mechanical reducer. A piece of soft chamois leather or rag is stretched over the tip of the finger; it is then moistened with methylated spirit, and the film gently rubbed over the dense parts with it. The outer surface of the gelatine is rubbed away, carrying the silver with it.—*Ag. Br.*, *in Photography.*

WHY THE SUBJECT OF A PHOTOGRAPH COULDN'T LOOK PLEASANT.—" A man trips over his own cleverness now and then," said Max Platz in the Chicago *Mail.* " You know that when people are sitting for pictures they are given an object to keep their eyes fixed on, don't you ; that this object is usually a photograph fixed in a clasp at the top of a stick, which may be raised or lowered to suit the case. Usually there are two photographs back to back—one the picture of a gentleman and the other the likeness of a lady ; if the sitter is a gentleman he is given the charmante dame. to rest his eyes on ; if a lady the gentleman's photograph is turned to meet her gaze. The other day a charming young society lady was sitting for a picture ; I had her all posed and told her to look at the object indicated and look pleasant. She complied by looking savage enough to fight a dog. I didn't say anything. It's no use, you know. Besides, the plate was spoiled; so I slipped in another and gave her a slightly different attitude and ventured a bit of time-tried and fire-tested wit in order to make her look sweet as I called her attention to the object picture and pulled the string. Same as before—a scowl that nearly broke the plate. Once more, and a funny story thrown in. No good. Still another, with a neat bit of flattery at the critical moment. Worse and worse ! Four plates spoiled. Finally I said :

" ' Had a death in the family ? '

" ' No,' she said.

" ' Lost a pet dog ? '

" ' No.'

" ' Had a quarrel with any body ? '

" ' No.'

" ' Well, then, please look pleasant,' and I drew her gaze to the aforesaid picture.

" ' Must I look at that ? ' she asked.

" I told her she must.

" ' And look pleasant ? ' she inquired.

" ' Yes,' I said.

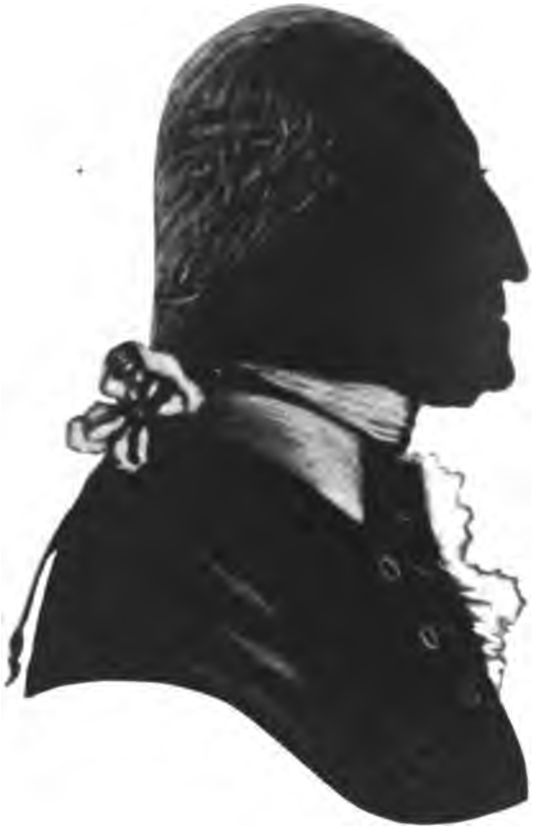
" ' I can't,' she remarked, quietly but firmly.

" I looked at the photograph to which I had been directing her gaze. It was a picture of myself, The joke was on me."—*The Photographic Times.*

THE HARVARD DRY-PLATE COMPANY have recently put upon the market a Dry Developer, which is meeting with great favor, as would be expected of anything sent out by this well-known company.

This developer is something which photographers have long desired. It is put up in powders, easily carried, and takes up but little room. Another great advantage which it possesses over liquid developers is that there is no danger of breakage and consequent damage to plates and other material.

The developer requires only the addition of water for use. It is put up in packages convenient for the traveling public.



"FOLWELL'S WASHINGTON."

NEGATIVE FROM ORIGINAL. BY JULIUS F. SACHSE.

AMERICAN ACADEMY

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JUL 16 1890
OF ARTS AND SCIENCES.

AMERICAN JOURNAL OF PHOTOGRAPHY.

Published by THOS. H. McCOLLIN & CO.

VOL. XI. PHILADELPHIA, JULY, 1890. No. 7

THOS. H. McCOLLIN, Managing Editor. **J. F. SACHSE, Associate Editor.**

THE SILHOUETTE.

OUR illustration, "Folwell's Washington," is a profile of the one person characterized in our nation's history as the "First in war, the first in peace, and the first in the hearts of his countrymen." Our object in presenting this frontispiece to our readers for the current month is a two-fold one;—first, in view of the Eleventh Annual Convention of the Photographic Association of America, which is to be held in Washington, August 12–15. The subject is a particularly appropriate one.

The original portrait was painted by Folwell, in 1795, while General Washington was in the presidential chair, for Col. William Washington, a kinsman of the General, and who in the year 1800, but a short time after the General's death, presented the portrait to James Henry Stevens.

The following endorsement is written on the back of the picture: "Done 1795, —Presented to—James Henry Stevens, Esqr.,—by his friend Col.—Wm. Washington, Sept.—9th, 1800—Said to be a—Correct likeness from life of—His Excellency Gen'l—George Washington—1st President of—the United—States of America."

The original is now in the possession of the Historical Society of Pennsylvania, and is classed among what are known as "rare Washington portraits." In Mr. Wm. S. Baker's list we find on page 109 the following notice regarding the portrait and the painter. "Samuel Folwell, 1795, miniature painter, of whom little is known, was practicing his art in Philadelphia, the latter part of last, and the beginning of the present century. The profile of Washington in possession of the Historical Society of Pennsylvania, inscribed 'S. Folwell, Pinxt, 1795,' is said to have been taken upon a public occasion, the President being unaware of the fact. It is drawn on paper and solidly painted in India ink, with certain lights touched in, and as declared at the time is 'certainly a most spirited and correct likeness.' There is no engraving of this profile."

In addition to this portrait by Folwell, there are in existence two regular silhouettes of Washington. One was taken by Samuel Powell, an ex-mayor of Philadelphia, by tracing on the wall a shadow thrown by an Argand lamp, which had just then been invented. This picture is now in the possession of the Massachusetts Historical Society. The other, a psaligraph, or silhouette cut with the scissors, by a Miss De Hart, of Elizabethtown, N. J., in 1783.

It will be noticed that the portrait belongs to the more advanced type of its class; viz: where an attempt is made to introduce detail by the use of the brush.

Our other reason for reproducing this portrait is owing to the fact that the solid profile has of late again attracted considerable attention in photographic circles of Europe, and strange to say much difficulty seems to have been experienced in obtaining desirable results. As simple as the production of a solid profile seems to be (and is to us in America)—if we may credit our European exchanges—just so difficult has the process proved to some of the camera artists beyond the sea, as will be seen from the accounts here given.

On account of the extreme plainness and simplicity of the old silhouettes, we are too apt to pass them by as productions of but little or no artistic merit or value, overlooking the fact that the plain outline contour, in centuries past, was the germ from which emanated the arts of bas-relief and portraiture, the latter passing through all the various stages from the plain outline of the finished miniature, and these in their turn to be supplanted by photography of the present day.

There are two traditions which have come down to us from the dim ages past relating to this subject. One informs us that it occurred to an old Greek to follow the contour of a friend's shadow with a piece of coal as it fell upon the white marble wall of the temple, thus permanently securing the outline of his friend's features; from this incident is said to date the Greek School of Painting. Arkides, of Corinth, and Telephanes, of Sikyon, improved the process by filling out the space between the lines with a piece of coal or ruddle (an argillaceous iron ore), from thence the transition to pigments was an easy and natural one.

The other tradition, a still more pleasant one, would have us believe that about twenty-five hundred years ago there lived in same city of Sikyon, in Greece, a modeller in clay by the name of Dibutades. He had a daughter Kora; he also had a young apprentice. As usual in these old tales, both were young and fair, and in the course of events vows of betrothal were exchanged. Shortly afterwards, as the pair sat together, Kora suddenly seized a piece of coal from the brazier, and asking her betrothed to remain still, she traced upon the wall the outlines of the face which was so dear to her. It was an inspiration on the part of the Greek maiden, and so correct was the likeness that when old Dibutades saw it he recognized it at once, and thinking to please his daughter, he filled in the portrait with clay; the result was a bas-relief, the first that was ever made.

As crude as the silhouette appears, it certainly was the best process, prior to the advent of photography, to reproduce the features of persons; this applies, however, more to such as had a marked or prominent profile, the result almost always being a recognizable portrait, while in subjects with soft harmonic lines, especially female faces, the identification of the original by means of the silhouette, or profile, was more or less difficult. Yet there was a time, we will say in the century preceding the perfecture of Daguerre's invention, when the silhouette was popular and common as the carte or cabinet photo of the present day.

It was about the middle of last century when the rage for profiles broke out in France. It is said the style was introduced by the Pompadour, then at the zenith of her power. Be that as it may, it struck the popular fancy, as it was a branch of portraiture which came within the reach of all classes. Paris was soon flooded with profile artists, and the black profiles became known as "a la Pompadour." With the decline of her power, and the appointment of one Etienne de Silhouette as Minister of Finance, who on account of a system of retrenchment inaugurated by him had become an object of derision with the court favorites and the populace, a reaction set in; and so great a butt had the Minister become with the populace, that everything that savored of retrenchment, or was cheap, poor, or shopworn, was "a la Silhouette." Our profiles, on account of their inexpensiveness, came under the same category, and strange to say thus immortalized, for all time to come, the name of the honest Minister of Finance.

Towards the end of the last century the art of profile painting reached its highest development, of which our example is a good specimen. In our own country, the demand for these pictures was so great that a special machine was invented for the purpose of producing correct outlines in miniature. This apparatus was one of the features of Peale's Museum, then in Independence Hall. The process was first to outline the shadow, then the machine was brought into play; this consisted of a tracer, which moved on a universal joint on the standard, the respective ends being adjustable as to length, so as to suit the required relative proportion between the shadow and the miniature copy. In using, one end of the tracer was caused to follow the line of the profile, while the other marked upon the paper which was presented in a frame. The paper was then removed, and the portrait cut out by the scissors. The silhouette portrait also came into vogue for book illustrations, and specimens from copperplates are frequently found in old volumes.

Towards the close of the last century the silhouette for a time was superseded by pastel portraits. However, it was not long before the art was again in favor, and practiced by numerous artists. The brush, which had heretofore been almost exclusively used, was now supplemented by the knife or scissors, resulting in the art of "Psaligraphy," in which the portrait was either cut out of glossy black paper and then pasted on a white card, or the reverse, where the outline was cut with a knife from a sheet of white paper and then backed with a piece of silk, thus showing a black profile on a white ground. Specimens of the latter process are very rare, as it required an artist of no mean order for their execution.

Owing to the popularity of the silhouette it soon became elevated to the rank of meritorious art. Noteworthy among the exponents of this school we will mention the late Paul Konewka, Ströhl, and others, who produced effects of a surprising degree of naturalness in solid black. Half a century ago silhouettes of prominent persons, actors, danseuses, soldiers, orators, etc., were as common an article of commerce as the photograph of a professional beauty is at the present day.

The advent of photography eventually proved the death blow to the silhouette, as a picture with all the detail and expression was far preferable to the simple profile. Yet at first, in many cases, on account of poor posing or defective lighting, the photograph showed less similarity to the sitter than the well-executed silhouette. At the present day, with the great advances in the photographic art, all necessity for the silhouette has ceased to exist, nor is there any special reason why that style of portraiture should be made by use of the camera, except as a pastime. Yet, strange to say, this subject has excited so much attention in Europe that it was made the special order of business at the April meeting of the Photographische Geselschaft, in Vienna, where Herr Eisele, a prominent member, stated that he had experimented for the last two years in producing photographic silhouettes. Professor Luckhart and the artist Herr Schuer had also devoted much time to the subject without, however, succeeding as well as the first speaker.

The details of Herr Eisele's experiments certainly make interesting reading for us on this side of the water. He states that at first he covered a frame with tracing paper, then placed his principal between the sun and the screen, thus throwing a shadow on the paper. The camera was set up on the other side, so as to photograph this shadow, the lens, of course, pointed direct to the sun. He then made the attempt to shade the lens with an umbrella. He neglects to state how often he got the outline of the paraplieu on his plate. Then he tried Blitz-pulver—sitter, camera, and screen in same position. Result as might have been foretold—a miserable failure.

Next the screen was placed in a doorway with a bright light back of the screen. The subject was placed in front of the screen, the room darkened, the camera being placed in front of the sitter and screen. A Blitz-lamp exposure of five to six seconds was then made. Result—not a single specimen that equals our old silhouette. So much for our Viennese photographic cousins. In these great United States we simply tack a piece of muslin in front of a window, place the subject directly in front, shut off all other light in the room, focus, fire, and develop. Result—a good sharp profile almost all the time.

JULIUS F. SACHSE.

SOME FURTHER DETAILS ABOUT PRINTS.

THE drying of a photographic print after the final washings have been completed is a simple enough matter, and yet it is possible for the most exasperating failures to occur at this stage of the process; the disappointment experienced being all the more keen because the work is in a certain sense finished.

Those unacquainted with photographic neatnesses might easily imagine that all that was necessary was to take the print out of the water, and lay it aside in any convenient place to dry. They would soon find out, however, that if the substance with which the wet print came into contact were capable of communicating any impurity, the print would be sure to show in the form of stains. For instance, suppose that the prints were hung over wooden poles, or laid on wooden shelves while still wet, there would hardly be a possibility of escape from stains. This would be true in the case either of silver prints of any kind, bromides, or blue prints.

Silver prints on plain paper and blue prints are more manageable in drying than the other forms which are made on papers prepared with a contractile substance like gelatine or albumen. Supposing that the wooden poles or shelves before spoken of were covered with clean white linen or blotting paper, all those forms of prints having a plain surface might safely be dried there, but an albumen paper print would not do so well; if laid out flat on the shelf it would contract unequally, and be so crinkled and shrunken that there would be serious difficulty in trimming. Drying over the pole would be preferable, but the albumenized surface would be put on the stretch unequally, so that in the case of a highly glazed surface there would be fissures and cracks very detrimental to the finished result.

The best method of drying prints of all descriptions, and a very convenient and inexpensive one also, is the following: Provide a number of spring clothes-pins, a few yards of ordinary brass wire, and a couple of good-sized screw-eyes. Having selected a suitable place in the workroom where the prints will not be disturbed, screw in one of the screw-eyes to the wood of the window or door jamb at the height of the shoulder; pass one end of the brass wire into the eye and secure it, then string the clothes-pins on to the wire, and secure its other end by means of the other screw-eye at a convenient point across the room. Having brought the prints from the washing tank in an ordinary deep pan, select those of similar sizes, bring them together neatly, back to back, while in the water, then take them out and suspend the pair from one or more of the clothes-pins, according to the size of the prints. If they are very large, it may require three of the clothes-pins to fully support them, and avoid risk of the wet mass tearing by its own weight. While on the other hand, small sizes, such as 5x4 inches, may be held by a single pin. When the paper is very glossy, and the weather dry, the larger sizes may require to be pinched together at the bottom corners by an additional couple of clothes-pins, which will prevent the prints from separating until thoroughly dry.

Prints dried in the manner described will be quite flat, and free from stains of any kind. We need hardly add that the clothes-pins should be new and clean, and kept for this purpose only. If the prints are hung up to dry in the evening, they will be ready for trimming in the morning, when the end of the wire may be released, and the whole turned aside out of the way until the next occasion for use. If the wash-water is muddy, as is often the case, the deep pan in which the prints are transferred to the drying-room may be filled with clean filtered water, so that the collected mud in the paper may be soaked out before drying.

The warm weather we are now passing through reminds us of a few matters which have greatly eased our own labors in the printing-room, and simple as they are we will mention them.

It sometimes happens that there is trouble in securing pure whites in prints on albumen paper, an universal yellow stain covering everything. The best remedy for this is the use of alum in the printing bath, as originally suggested by the late Mr. Anthony, of New York. Care also must be taken that the paper is quite dry before being fumed. Operators are too apt to forget that as the thermometer rises, so does the amount of watery vapor in the air increase, and that sheets of paper will often dry more quickly on a bright day in winter than on many hot days in summer. The way the paper feels to the hand is the best guide, and some little attention is required to be able to tell accurately.

The question whether the strength of the silver bath should be reduced or not during warm weather is open to some discussion. If the paper be of first-class quality, and the bath contain alum, as before alluded to, it would be possible to continue making good prints having pure whites with the bath at full strength, by which we mean fifty to seventy grains to the ounce. There is no question of the fact that the sensitiveness of the prepared paper increases when floated on a strong bath, and that the compound which is then formed between the albumen and the silver is more prone to decomposition. It will occasionally happen, if the prints come out yellow, metallic-looking, and covered with minute black specks, that weakening the silver bath down to the strength of forty-five or even forty grains will cure the trouble. A strength of forty grains, however, we should consider a low one, and only to be resorted to for unusually hot weather or for particular kinds of paper, such as very thin and delicate Rives.

The paper should not be left in the fuming-box for too long a time in hot weather· If things are properly arranged for the purpose, ten to twelve minutes ought to suffice for thorough fuming. It is important, of course, that good strong ammonia be employed, and care should be taken that the glass stopper be well secured in the bottle· In a hot printing-room the stoppers of ammonia bottles are frequently blown out by the vapor and fall on the floor, leaving the contents of the bottle to lose strength rapidly.

ELLERSLIE WALLACE.

THE CONVENTION AT WASHINGTON.

THE time for the Eleventh Annual Convention of the Photographic Association of America is approaching, and we hope the craft through the length and breath of the land are preparing for it. Mr. J. M. Appleton, the president, sends the following circular, which should be carefully studied by every photographer, and also a specimen of the blank form to be filled up by intending exhibitors. Those who may not have received a copy should apply to him.

We published a list of the prizes to be awarded in our March number, and now print the following:

RULES FOR JUDGES AND EXHIBITORS:

RULES GOVERNING JUDGES IN THE GRAND PRIZE.

1. The points to be considered are: First, historic; second, originality; third, composition; fourth, lighting; fifth, technique.

2. Ten marks to be the highest for any one point, consequently, fifty marks the most that can be given to any one picture.

3. The standard of this award must be thirty-five markings out of a possible fifty.

RULES GOVERNING JUDGES IN CLASS A.

4. The principal points to be considered are: First, originality; second, composition; third, lighting; fourth, technique.

RULES GOVERNING JUDGES IN CLASSES B, C, D AND H.

5. The following points to be considered are: First, lighting; second, posing; third, chemical effect; fourth, general effects or finish.

6. Ten marks to be the highest for any one point, consequently forty marks the the most that can be given to any one picture.

7. The above regulations also to govern Class A.

8. Applications for space must be made to George H. Hastings, No. 147 Tremont street, Boston, Massachusetts.

9. Entries to close on Tuesday, July 15, and no space to be allotted for exhibits after that date. All exhibits must be shipped so as to reach the exhibition on the Saturday preceding the opening of the same, and all charges to be prepaid.

10. Each picture or set of pictures must be marked with a letter signifying the class in which it is offered for competition.

11. The exhibition of photographs connected with the convention is to be considered an art exhibition pure and simple. In order not to detract from this standard, no sign of any description shall be allowed in the hall devoted to the display of photographs, except the names and addresses of the exhibitors.

12. No exhibit for the grand prize or classes A, B, C, D and H to occupy space of more than eight lineal feet, and in class E, ten lineal feet.

13. All photographs exhibited must be from negatives made since the tenth annual convention, held at Boston, Massachusetts, August, 1889.

14. All exhibitors must see that their displays are properly placed before 10 o'clock A.M., on August 12, and no exhibits will be admitted after that date.

15. All art exhibits must be sent to George H. Hastings, Art Department, Photographers' Association of America, Smithsonian Institute, Washington, D. C., all charges prepaid.

ELEVENTH ANNUAL CONVENTION OF THE PHOTOGRAPHERS' ASSOCIATION OF AMERICA.—SMITHSONIAN INSTITUTION, AUGUST 12 TO 15.

OFFICE OF THE SECRETARY,
IOWA CITY, Iowa, May 24, 1890.

To the Photographers of America:

The eleventh annual convention of the Photographers' Association of America will be held in the Smithsonian Institution at Washington, D. C., August 12 to 15, inclusive, and from present indications the attendance will be larger than ever before. Why not take a few days' vacation and attend this meeting? If you only knew the treat that awaits you in Washington, every photographer in the land would attend, if they had to close their business for a week to do so.

A visit to the places of interest in Washington, the most beautiful city in the world, will alone be worth the time and money spent. The fine collection of paintings in the Corcoran Art Gallery is of special interest to photographers, as it contains some of the finest pictures in this country or in Europe. A visit to the capitol and government buildings, the Washington monument, the White House, the Smithsonian Institution, and many other interesting points will add to the pleasure of this occasion, and is alone well worth the time and expense of the trip.

The Committee on Railroads have secured a rate of one and one-third fare for the round trip on all trunk lines in every direction. In order to obtain this rate, you must obtain a receipt from the ticket agents of whom you purchase tickets on all roads, and have them signed by W. V. Ranger, second vice-president, at the convention, this will entitle you to a one-third fare returning.

The headquarters of the convention will be at the Ebbitt House, and the following rates have been obtained at the different hotels: Ebbitt House, two in a room, $2.50 per day; Ebbitt House, one in a room, $3 per day; the Arlington, $3 per day; Millards, $3 per day; the National, $2.50 per day; the Riggs, $3 per day; the Harris, $2 per day; and many other hotels from $1.50 to $2.50 per day; also several on the European plan, rooms from 50 cents to $1.50 per day.

If you will look at the benefits to be derived from attending this meeting, we feel sure that you will take the time and meet with us.

The unveiling of the Daguerre memorial during the convention, to be permanently placed in the Smithsonian Institution, will be one of the special features. This memorial is the gift of the photographers of America. The fund is raised by one or more dollar subscriptions from the photographers (which it would be well for you to send in your subscription at once to one of the different committees, and help the matter along, and do honor to the man who first brought to light this noble profession of ours).

You will miss it if you *fail to come.* There will be some of the finest specimens of American photography ever exhibited, as well as European. I have the promises of exhibits from all the leading photographers of the world

Rules and regulations, list of awards, entries for competition, etc., will be mailed on application.

Is not this association worthy of your support? Any photographer of good moral and professional standing is eligible. If not already a member, lose no time in uniting yourself with an organization already a power in the land. It has stood the test of time (eleven years), and has a creditable standing throughout the length and breadth of the civilized world.

To become a member, send five dollars if a proprietor, and two dollars if an employé (which pays entrance fee and dues for first year), to the treasurer, G. M. Carlisle, Providence, R. I. If already a member kindly remit your dues ($2.00), and by so doing avoid waiting your turn at the entrance when you arrive at the convention, as none can be admitted whose annual dues remain unpaid.

EXTRACT FROM CONSTITUTION.

ARTICLE II., Section 4.—The annual dues become payable on January 1 of each year, and any member failing to pay the same prior to the adjournment of the annual convention shall forfeit his right to membership, and can only be reinstated on payment of an initiation fee ($3.00) and ($2.00) dues, $5.00, as provided in case of admission of new members.

Become a member and get the benefits of the art lectures, practical talks, and a grand exhibition of photographic productions and stock exhibit. Fraternally yours,

D. R. COOVER, *Secretary.*

[We expect to publish, in our next number, an additional article on this subject, from the pen of the president, J. M. Appleton, which will reach our subscribers in ample time for the convention.] S.

THE average newly-fledged photographer wishes to begin before breakfast. The barn or the back-yard fence is good enough for him, and if nothing else alive is in sight, it is easy enough to try it on the dog. Few dogs, however, have a proper sense of the responsibility of being photographed. After everything is carefully arranged, they get up and want to go home. Sometimes they remain silent until the picture is started, when they begin to stroll around and make eight or nine dogs on the plate; or they sit still and only wag their ears, until the negative shows something like a halo of ears. This would give a professional photographer much worriment of mind, but the amateur is generally wise enough to see that his failures are the funniest things he has.—*Photo. Times.*

ORTHOSCOPIC PHOTOGRAPHY.

IT is well known that there are a large number of coal-tar color products, which have the property of causing an orthoscopic action on the ordinary sensitive dry plate, making the plate more sensitive for a certain color than the others; for instance, eosine is a superior sensibilator for green-yellow and yellow-green; cyanin, again, is especially sensitive for reds. Other products, such as rhodamin, cyclamin, methyl, violet, and others, generate in each instance an especial color sensitiveness.

While we have no deficiency in these mediums which answered for the greens and yellows, we have but few that answer for the various shades of red. Although Dr. Vogel has strongly recommended a mixture of chinolin red and chinolin blue (cyanin), the latter has two great drawbacks, viz., the salt is very dear, and does not keep. To overcome this difficulty I have instituted numerous experiments to replace the above with a more durable and cheaper medium. Among the various substances which I have tried, the mixture of indophenol and malachite green, has given me the most satisfactory results. Malachite green alone produces a strong sensibility to red, but the addition of the indophenol greatly enhances this sensibility.

In connection with the experiments with this solution, the interesting fact was observed that the sensibility for blue was greatly reduced in the brom-gelatine film, while green and yellow appeared in their true color values.

My proceeding is as follows:

(*A.*) Dissolve O, 1 g. indophenal (napthalin blue) in 500 ccm. alcohol.

(*B.*) Dissolve 1 g. malachite green in 200 ccm. water.

The latter solution is heated to about 70° c.

In the meantime, prepare a solution of 10 g. doppelt chrom sauris kadi in 100 ccm. water, at a temperature of 70 to 80°, then pour this to the hot solution of malachite green.

This mixture is kept hot for half an hour and then filtered, the precipitate which remains on the filter is now washed in several waters, and finally again dissolved in a solution of

Alcohol . . . 250 ccm. Chinin sulphate . . . 0-8 g.

The latter is first dissolved in a little alcohol by heating, then the volume is added to until the amount is reached. The filtered fluid has a beautiful greenish-blue color. This forms the stock solution.

To sensitize the plates, make the following bath, pour in graduate:

Indophenal solution (as above)	4 ccm.
Malachite green (stock solution)	4 ccm.
Water (distilled)	600 ccm.

Pour 60 ccm. of this solution in a tray (13 by 18 cm.) cover the plates and soak 2 minutes, keeping the tray in constant motion. During the operation all red rays must be carefully excluded; then the plate is drained and dried in absolute darkness.

Plates so treated are much quicker than when in their normal condition. They give the reds in their true color value, even through an intensive yellow-color screen. Even this extreme color sensibility can be enhanced with the use of a "supplementary-ray filter" ("Ergänzungs-Strahlen filter"), which is made from a substance which absorbs all colors except the reds and yellow. Gelatine, dyed by soaking in a erythrozin solution, furnishes an excellent Ergänzungs-Strahlen filter, which is used in connection with the usual yellow color screen. M. LEON VIDAL.

PHOTOGRAPHY IN ROME.

THE *Bollettino*, a journal published every two months in Rome, and the chief organ of those interested in photography in that city, gives the result of the last election of members of its Photographic Society as follows: Adler, Dottor Vittoria; Intriglio, Avv. Benedetto; Tenerani, Cav. Carlo; and of the correspondent members —Calvaria, Cav. Avv. Giuseppe, of Castellamare di Stabia; Daniele, Oreste, of Catania; Garzia, Oronzo, of Maglie; Hermans, Charles, of Brussels; and Orsini, Marchese Antonio, of Solmona.

The opening of the Second Annual Exhibition of Photography took place in the Palazzo di Belle Arti on the 2d of May, when a large number of members took part.

The display included landscapes and interiors, portraits, instantaneous views, film negatives, photo-micrographs, enlargements, flash-light pictures, architectural views, and representations of costumes taken in Morocco and in Sweden.

An excellent article on "The Duration of the Pose" begins thus:—"Formerly, when collodion occupied the whole field of photography, the first difficulty in the art was the preparation of the sensitive surface. Now that the preparation has undergone a radical change, passing into a branch of industry, that first difficulty has vanished, and there has succeeded to its place the duration of the pose, the exact determination of which has over the resulting picture an influence as great, and possibly greater than formerly, seeing that in the very short poses of the present time even a little error has a value of relatively greater importance." The article goes on to say that the duration depends (1) on the sensitive preparation, (2) on the actinic power of the light, (3) on the object, (4) on the diaphragm, and (5) on the distance. Thus, if it were required to represent by an algebraic formula the conditions governing the pose t'', we should have—

$$t'' = k.\ P.\ L.\ O.\ d.\ D.$$

where k is the invariable constant.

The article, which is too long to translate, is written by A. Roncalli. It is succeeded by a short notice of the effects of the Schippang varnish upon collodion enlargements. This article, written by Ab. F. Castracane, makes mention of some unhappy results of the use of this varnish on some of his own pictures. After this comes a letter from Sac. D. Ratti, on halation, or *aureole*, as the Italians call it. Then a paper on the development of instantaneous negatives and on the toning of aristotype paper, by Bne. T. Melazzo. Various notes and receipts, with a bibliography and a short notice of the illustrated supplement, complete this interesting number. The illustration is that of a moonlight effect, the negative by A. Ducros, the phototype by Danesi, of Rome. "To obtain this picture," says the letter-press note, "it was sufficient to set the machine against the setting"—pardon the indiscretion; I was about to add sun—"and to remove the cap. But, before this is done, that certain fifth sense has to be taken into account, without which,

'Non licet adire Corintum!'

and Signor Ducros, profound and advanced artist and photographer as he is, possesses this fifth sense, and uses it in a masterly manner."—*Photographic* (London) *News*.

AMATEUR EXPERIENCES.—IV.

IF any one wants to become thoroughly acquainted with the weaknesses and frailties of humanity, just let him become a camera carrier, in all that the word implies,—and he will enter a school, wherein he will learn more of the different phases of human nature in one lesson than he has during the last ten years of his life. No other vocation, if we except that of the live newspaper reporter, offers the same advantages in this biological study. Varied indeed are the experiences and vicissitudes of the amateur photographer, whether the camera bearer carries the latest Universal, with aluminium mounting, or rejoices in a Premium Pinhole outfit, he experiences the same annoyances and disappointments. Ignorant and unreasonable people are sure to be met with on an outing, and, worse than all, he has frequently to suffer for the sins of some rude member of the guild who has been there before him. Experiences like these are but too apt to discourage persons of a nervous or sensitive temperament; the picture, however, is not all shadows. There is often a bright side for the camera bearer, especially if he be susceptible of the humorous. Photographically speaking, the writer, in addition to such annoyances as double exposures, unaccountable fog, forgetting to draw the slide, put plates in the holder, or take the cap off, to say nothing of neglecting to insert the stop, has met with many rebuffs and disappointments on his outings, through meeting with ignorant or unreasonable people, in all such cases his rule has been always to look upon the comical side of the situation, and try to achieve his object, bringing into play his common sense, tact and knowledge of human nature, generally with the result of obtaining the coveted negative.

The trouble, however, does not always lay in the strangers we meet in our travels; the fault too often is with the camera bearer. There is a class of persons, largely represented among the guild of amateur photographers, who presume entirely too much on their wealth or social standing, and who at home pride themselves on their good breeding and polite manners, claiming to be within the so-called exclusive social circles or sets; yet they no sooner get away from the restraint of their immediate surroundings, such as a photographic outing affords, than they seem to forget that at least a little courtesy is due the strangers on whose premises they trespass. The dweller in a picturesque tumble-down shanty, or custodian of an old colonial or religious land mark, no matter in how humble circumstances of life they may be, have rights guaranteed them under the law, which even the exclusive amateur is bound to respect. One specimen of this kind will often spoil the game for all amateurs for some time to come. We will give a few instances which have come under our notice.

Early last spring two prominent members of the Quaker City Camera Club concluded to photograph an historic old church in one of the German counties (so-called) in our state. The place was rather difficult of access, being away from the usual lines of modern travel, so extensive preparations were made. The day proved all that could be desired. A team had been telegraphed for, and met the pair at the nearest railroad station. When the spot was reached the outfits were quickly unpacked and set up. No permission was asked, nor notice was taken of flower-beds trampled over, or other damage done. Then the bell of the parsonage was rung,—the clergyman answered the call in person. The spokesman, great in his own importance, asked for the keys of the church, as they wished to photograph it. The dominie answered, with an unmistakable Pennsylvania-Dutch accent, that the sexton lived about a half a mile down the road. The reply was, that as he had a key it did not suit them to run after the sexton. Well, one word brought on the other, and the parley ended with the clergyman saying, "You will please excuse me; I got no time to fool with such nonsense, and I can't be bothered with opening the church for every fool photographer who chooses to come out here from town; please go about your business, if you have any." The interview closed with the threat by the parson to use a hoe-handle over the next photographers who should come to bother him with their intrusiveness. Our two amateurs packed up their outfits and beat an ignominious retreat, going back to Philadelphia with temper ruffled and object unaccomplished.

A few days after this episode one of the twain, wishing to have some sport at our expense, suggested to the secretary of the Leopardville Camera Club the advisability of a trip to the adjoining county, and securing for him a set of negatives of the old landmark. We knew nothing of what happened, and consequently, owing to our innocence and unsophisticated nature, we unconsciously fell into the snare that our kind friend laid for us on the first fine day. We made an early start. We went merrily over hill and dale, not dreaming of trouble. When within half a mile of the church, we stopped at a roadside inn to water our horse and inquire our way. We remembered the hostler, who, while reigning up, caught a glance at our outfit. To our surprise, he broke out with, "Say, Mishter, vas you a fotegraf feller?" "Why?" we queried. "Vell, if you vas, tont go to der kärch up dere; der breecher letzt woch putty near broke zwei fotegraf feller's het's up." Here was a revelation. Our nickel had been well invested. We made closer inquiries,—from the description, we at once recognized our friend from the Quaker City who had suggested our trip, and was no doubt chuckling in anticipation of a countryman's discomfiture. After a few moments' thought we continued on our way. We met the dominie, and when we got back to our home we had eight negatives, exteriors and interiors, in our satchel. In one of the latter the dominie appears in the quaint old pulpit. With our ten dollar outfit, by the use of civility, tact, and common sense, we had accomplished that in which our predecessors had so signally failed, mainly by not exercising the common civility due towards a stranger.

Another case which came under our notice but a few weeks ago: In an adjoining county there still exist several quaint old buildings, erected during the middle of last century by a religious community, and used by them until long after the Revolution. Owing to the curious architecture and proximity to a summer resort, the property is often overrun by visitors and sightseers, who run over the grounds, enter the houses, intrude on the privacy of the inmates, as if they had no rights of their own whatever, and in fact act as if the whole premises were public property. The custodian or trustee of the property is a plain country Dutchman, and keeps an especially sharp lookout for amateur photographers, as the religious sect to which he belongs frowns down portraiture of any kind. A few weeks ago a party of nine or ten persons, ladies and gentlemen, made a pilgrimage to the old settlement under the leadership of a well-known pulpit orator in Pennsylvania. Among the party were several amateur photographers. When the party arrived at the grounds they entered, without as much as asking permission, and at once made themselves at home within the premises regardless of the inmates. While the amateurs were setting up their cameras, the preacher was airing his knowledge of the religious doctrines of the community which flourished there in days gone by. While making these derogatory allusions, the party had been joined by a stranger,—it was the trustee, and who lost no time in introducing himself to the preacher. The two men were a study for an artist. The preacher, who prided himself on his fine physique, oratorial powers, and dignity, was the ideal picture of the petted fashionable preacher of the present day. The other, a man of medium height, bare-footed, unkempt; a straw-hat of last season's growth, a shirt of unbleached muslin, a pair of overalls, which hung by a single "gallus," completed his wardrobe; his language was pure and unalloyed Pennsylvania Dutch.

In appearance the two men as they faced each other were as diametrically opposite as the poles. The trustee, without any ceremony, asked the preacher what he was doing there; the latter, looking down at the speaker with contempt and scorn, and nettled at the interruption, curtly told him to attend to his own affairs. This was more than the trustee could stand, and he at once ordered the party to pack up and get out. This in turn was too much for the preacher; so, turning to the trustee, said, "My good fellow, you seem not to know whom you are addressing; I am the Rev. Dr. ———, of ——— Church, in Philadelphia, and I wish you to understand that you are in the presence of ladies and gentlemen, and I would advise you to take yourself off without ado, as your presence here is unwarranted, uncalled for, and distasteful to the persons present as well as myself personally; and further, your appearance is hardly such as would be permitted within the circles in which the ladies present are in the habit of moving." During this speech the trustee stood with mouth and eyes wide open. The others of the party nodded approval as their spiritual leader was delivering himself. One of the photographers was trying to train his camera on the countryman, who had for a few moments stood speechless. But it was only the calm before the coming storm. With a bound the trustee kicked over the tripod and camera; then, turning to the preacher in an unmistakable attitude, told him in his rich German English, that he was on private property, tramping down a growing grass crop, and if he and his crowd didn't pack themselves off at once he would arrest and fine the party for trespassing. "But, my good fellow," ventured the now crestfallen preacher. "Don't speak to me!" was the retort. "You claim to be a gentleman; maybe you try to be at home. But if you were one, you would know better than coming with a crowd on another's place, where you have no business, without even asking permission." "But, my good man, we are willing to pay you if—" broke in the preacher. "We don't want your money. All I want is for you to go and not bother us. Or do you want me to show you the way?" All this was said in the rich vernacular peculiar to the locality. There was no help; the trustee was on his own ground. So the party retreated and filed singly over the old stile into the road. It would be hard to say which of the party felt the sadder as they wended their way towards their conveyance, the crestfallen preacher or the Rittenhouse amateur with his shattered outfit.

This was but another instance where a little courtesy and politeness would have saved humiliation and photographic disappointment.

J. FOCUS SNAPSCHOTTE.

A RECORD IN DEVELOPMENT.—Many amateurs are so fidgety about their dark-room and its appendages that we describe, both for the benefit of the finic and also for "those who go down to the sea"—in trains, how an extemporized traveling dark-room was successfully used by a member of the newly founded Croydon Camera Club.

In case the railway superintendent should reprimand the guard who connived at the measures adopted, we must perforce suppress the gentleman's name, the date, and the station where the train was joined.

About a fortnight ago Mr. X. ran down for the day to visit his friend Y., who dwells somewhere on the south coast, within about one and a half hour's journey from Croydon. Mr. X. having exposed sixteen quarter-plates, Y. enquired of him when they would be developed. "To-night," answered X., and added, "Perhaps before I get to Croydon." Y. expressed incredulity, on which X. guaranteed that he would have all the plates developed before reaching his destination.

No previous preparation had been made, and the train started in forty minutes from the time of above conversation. A sheet of ruby paper, some drawing pins, some oiled paper, and a piece of Willesden waterproof paper, together with Beach's developer, in two solutions, were procured. The guard was duly "tipped," and a pail of water obtained from the engine-driver. Mr. X. being safely locked in a third-class compartment, the Willesden paper was made into a tray, with sides three inches deep, on account of the swaying of the train. The ruby paper was pinned over the carriage lamp, and the blinds carefully drawn. The night was, fortunately, a dark one. Most of the plates were shutter views; these were first developed, the developer being used for about three plates and then thrown away. The time views were subsequently developed, with a suitable modification in the proportions of developer. The plates were well rinsed in the pail of water, and while wet wrapped in oiled paper, and thus packed in the ordinary boxes in which they are sold; the object of using oiled paper being that it does not stick to the film when the latter is either dry or wet. The plates were all developed before Red Hill was reached; the fixing being deferred until arriving home.

The resulting negatives were not noticeably inferior to those which the same worker generally produces in his dark-room. We have before us a print of a wreck with fisher-boats "salving," which is distinctly above the average skilled amateur work.

If so good a result is attained by adapting a railway carriage on the spur of the moment, even better could be done by pre-arranging to make use of the dreary time spent in traveling by night. The above *tour de force* is a strong argument in favor of those railway companies who run journeys of from five hours upwards, such as the Scotch express, providing a well-fitted but inexpensive dark-room. A luggage van might be converted, with an open compartment for workers to sit in when their "dark deeds" are done.

A pleasant vision is opened up of snap-shot views, taken from a railway carriage, and developed during the journey. Of course, plates need not be exposed while the train is "hurtling" along at seventy miles an hour; but in a, say, ten hours' journey there are many stoppages and slackenings of speed which a member of the "wideawakes" could profitably utilize.—*The Amateur Photographer.*

MILITARY PHOTOGRAPHY.

CAPTAIN CURTIES, of the Royal Engineers, has written a series of articles on the above subject, which were published in the *Broad Arrow*. In the last of the series he gives a description of his photographic outfit. His arrangements for exposing and developing the plates in the field afford interesting reading. However, judging from our own experiences on the scout, the picket line, or field, we should say that the whole scheme, as portrayed by Captain Curties, is more or less chimerical, and no matter how plausible the plan may seem or read to the members of a theoretical camera club in their well-furnished quarters, there are certain difficulties in the way which would make the scheme impracticable, and even if these were overcome, the results would be of but little if any use in actual service, a fact which will be apparent to anyone who has seen active military service.

The captain in his articles says:

"The one object I have kept in view all through has been to simplify the art as much as possible, and to make each photographic section complete in itself, and able to take, develop, and print a picture without any outside help in the shortest time possible. Having this end in view, my equipment supplies in the first place two light knapsacks, to be carried in a reconnaissance by two mounted officers or men. One contains a very light fold-up camera, capable of taking pictures 10 in. by 12 in., round which is wrapped the focussing cloth. It has not appeared to me desirable to place before a general a view of a country smaller than this. The extra weight would be more than compensated for by the comprehensive picture obtained; moreover, in a small plate, I take it, distance would not be fairly and distinctly portrayed. The other knapsack carries three dark slides, very light but strong, each containing two plates. This knapsack also contains the lens, instantaneous shutter, etc. Both knapsacks are made to fit close to the back, and, in addition to the straps passing over the shoulders, are secured to the sword-belt, thus preventing any injurious motion when riding. By the simple act of unbuckling one strap, each can be at once unslung ready to be unpacked. The tripod, which is made as light as can be consistently with strength and stability, is carried folded up in a bucket attached to the saddle, and fixes immediately on to the camera. We next proceed to the all-important subject of "developing" in the field. For this purpose I use a tent composed of a large, folding, umbrella-shaped top, made of a material which admits a deep ruby light. When this is opened and fixed in the ground, it stands just clear of a tall man's head. Over it is dropped a sort of sack, open at bottom ends, the top end being much smaller than the bottom end, and capable of being drawn together by means of two cords. This sack is lightproof and waterproof. The lower end is held down by means of a light iron hoop or ring, which also folds up to facilitate packing. The hoop is attached to the bottom of the sack in such a way that a border of the material extends beyond it, and rests upon the ground. This, in the ordinary way, is sufficient to keep out light, but should any find its way in, a few handfuls of earth or stones heaped up round the border will effectually keep it out. The stick of the umbrella is a hollow bamboo, open at the top. It is pierced with holes to about half its length; this ventilates the tent. A cap placed over the top of the stick excludes light, but not air. We now have a complete tent in which a man can move about freely, and use his hands without constraint, and, above all, he is not half stifled, as one generally is in the usual run of developing tents. It can be taken down at a moment's notice, and packed in a very small compass, the whole being exceedingly light and compact. A few stays may be necessary in windy weather to keep it steady. The person about to develop a plate slings over his shoulders, knapsack fashion, a small metal tank, containing sufficient water to wash several plates; attached to it is a gutta-percha tube and tap. Round the waist is buckled a broad leather belt, in which are fixed bottles containing the developing solutions, etc. A light fold-up trough, with a gutta-percha drain-pipe, carried outside the tent, and two light shelves, hook on to the stick of the umbrella. All that now has to be done is to lift up the walls of the tent, step inside, and develop and print the picture, which by using bromide-paper (undoubtedly *the* process for military use), would take something like a quarter of an hour, the printing, of course, to be done from the wet plate. I may mention that I use scarcely any glass beyond the plates (which I believe in); those articles which are made of glass are protected to prevent breakage. I believe myself that the whole of the articles now made of glass can be manufactured from a preparation of celluloid, which is strong, light, and durable. I hope shortly to have a complete set of bottles, measures etc., made of celluloid.

M. STRAVOS ZELLIS, of Alexandria in Egypt, recommends the following process for marking or lettering on the sensitized paper such names as we wish to give the prints. He takes a piece of thin white paper and traces upon it the words which he wishes to have at the bottom of his negative, and oils it on both sides; having removed the excess of oil by rubbing it between two sheets of bibulous paper, he coats it with varnish on both sides and allows it to dry. On the other hand, he removes from the bottom of the negative a portion of the gelatine, equal to the size of the paper, and substitutes for it the paper, which he sticks by means of a solution of gum arabic and water. He removes then the air bubbles, which would prevent complete adherence, and this being done, waits for his work to dry. If, when printing on the sensitized paper, it is found that the letters do not show very white, the defective portions should be retouched on the back of the oiled paper. To write his name Mr. Zellis makes use of a mixture of gum arabic, lampblack, and water. This process is simple, cheap, and gives excellent results.—*Annals Photographique.*

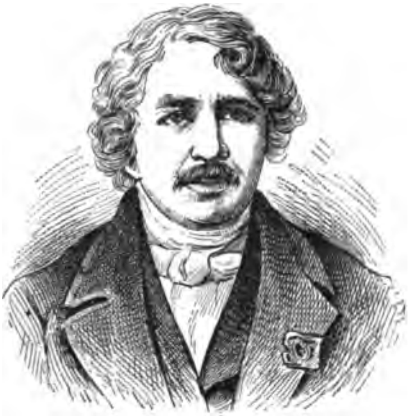
AT the meeting of the Photographic Society of Berlin, President Stolze exhibited the sketch of the Daguerre monument to be erected in Washington city, at the cost of six thousand dollars.

Dr. Julius Stinde declared never to have seen anything more disgusting (schauerlicheres) than this unhappy head of Daguerre, crushed under the weight of a large ball, and attributes the depravity of our taste to the high duty on articles of fine arts. He says that such monstrosities show that we Americans are yet in point of art barbarians of the purest water. Mr. E. Himly, as well as Dr. Stolze, takes our part, and shows that the American photographic journals have unanimously condemned and ridiculed Mr. H. McMichel's scheme, and exonerate us as a body. Bravo!—*Photographische Nachrichten.*

DAGUERRE.

ON the twelfth of August, in front of the Smithsonian Institute, in Washington, dedicated to manifold arts and sciences, will be erected a lasting memorial to Daguerre, the author that we all know fixed the visible image on a given surface, which is photography, with all its varieties and names, and they are numerous.

Why should we Americans put up such a memorial? The inscription on the granite below the bronze portrait tells the story:



"To commemorate the first half century in photography, 1839—1889. Photography, the electric telegraph, and the steam engine are the three great discoveries of the age. No five centuries in human progress can show such strides as these. Erected by The Photographers' Association of America, August, 1890."

The monument, now almost complete, its bronze features being of a high order of art, will stand sixteen feet high, and will be the only international monument in the city of Washington, where Smithson himself dedicated his fortune for the advancement of science in the western world.

In connection with this celebration we present to our readers a portrait of Daguerre. Strange to say, there are but few authentic portraits of Daguerre in existence. In our search for such a portrait we discovered the one here reproduced; it was engraved by Orr from a photograph by Dr. Meade, of New York, for the International Magazine, of that city, and used to illustrate the obituary of the eminent Frenchman, September 1, 1851. As everything relating to Daguerre cannot but prove of interest at the present time, we republish the interesting article in full as it appeared at the time:

Lewis Jacques Mande Daguerre, whose name is forever associated with the photographic process, of which he was the discoverer, died on the tenth of July, in Paris, in the sixty-second year of his age. He was a man of extreme modesty and great personal worth, and was devoted to art.

He was favorably known to the world before the announcement of his discovery of the Daguerreotype. His attempts to improve panoramic painting, and the production of dioramic effects, were crowned with the most eminent success. Among his pictures, which attracted much attention at the time of their exhibition, were, "The Midnight Mass," "Land-slip in the Valley of Goldan," "The Temple of Solomon," and "The Cathedral of Sainte Marie de Montreal."

In these the alternate effects of night and day, and storm and sunshine, were beautifully produced. To these effects of light were added others, from the decomposition of form, by means of which, for example in "The Midnight Mass," figures appeared where the spectators had just beheld seats, altars, etc.; and again, as in "The Valley of Goldan," in which rocks tumbling from the mountains replaced the prospect of a smiling valley.

The methods adopted in these pictures were published at the same time with the process of Daguerreotype, by order of the French Government, who awarded an annual pension of ten thousand francs to Daguerre and M. Niepce, Jr., whose father had contributed towards the discovery of the Daguerreotype. Daguerre was led to experiments on chemical changes by solar radiations, with the hope of being able to apply the phenomena to the production of effects in his dioramic paintings. As the question of the part taken by him in the process to which he has given his name has been discussed sometimes to his advantage, it appears important that his position should be correctly determined. In 1802, Wedgwood, of Eturia, the celebrated potter, made the first recorded experiments in photography; and these, with some additional ones by Sir Humphrey Davy, were published in the journals of the royal institution. In 1814, Mr. Joseph Nicephore Niepce was engaged in experiments to determine the possibility of fixing the images obtained in the camera obscura; but there does not appear any evidence of publication of any kind previously in 1827, when Niepce was in England. He there wrote several letters to Mr. Bauer, the microscopic observer, which are preserved and printed in Hunt's "Researches on Light."

He also sent specimens of results obtained to the Royal Society, and furnished some to the cabinets of the curious, a few of which are yet in existence. These were pictures on metallic plates covered with film of resin.

In 1824 Daguerre commenced his researches, starting at that point at which Wedgwood left the process. He soon abandoned the employment of the nitrate and chloride of silver, and proceeded with his inquiry, using plates of metal and glass to receive his sensitive coating. In 1829 Mr. Vincent Chevalier brought Niepce and Daguerre together, when they entered into partnership to prosecute the subject in common. For a long time they appear to have used the resinous surface only, when the contrast between the resin and the metal plates not being sufficiently great to give a good picture, endeavors were made to blacken that part of the plate from which the resin was removed in the process of heliography (sun drawing), as it was most happily called. Amongst other materials, iodine was employed; and Daguerre certainly was the first to notice the property possessed by the iodine coating of changing under the influence of the sun's rays. The following letter from Niepce to Daguerre is on this subject:

"81, LOUP DE VARVENNES, June 23, 1831.

"Sir and Dear Partner:—I had long expected to hear from you with too much impatience not to receive and read with the greatest pleasure your letters of the tenth and twenty-first of last May.

I shall confine myself in this reply to yours of the twenty-first, because, having been engaged ever since it reached me in your experiments on iodine, I hasten to communicate to you the results which I have obtained. I had given my attention to similar researches previous to our connection, but without hope of success, from the impossibility, or nearly so, in my opinion, of fixing in any durable manner the image received on iodine, even supposing the difficulty surmounted of replacing the lights and shadows in their natural order. My results in this respect have been entirely similar to those which the oxide of silver gave me ; and promptitude of operation was the sole advantage which these substances appeared to offer. Nevertheless, last year, after you left this, I subjected iodine to new trials, but by a different mode of application. I informed you of the results, and your answer, not at all encouraging, decided me to carry these experiments no farther. It appears that you have since viewed the question under a less desperate aspect, and I do not hesitate to reply to the appeal which you have made.

J. N. NIEPCE."

From this and other letters it is evident that Niepce had used iodine, and abandoned it on account of the difficulty of reversing the lights and shadows. Daguerre employed it also, as it appears, with far more promise of success than any obtained by M. Niepce. On the fifth of July, 1833, Niepce died; in 1837 Daguerre and Isodore Niepce, the son and heir of Nicephore Neipce, entered into a definite agreement, and in a letter written on the first of November, 1837, to Daguerre, Isodore Niepce says, "What a difference, also, between the method which you employ and the one by which I toil on! While I require almost a whole day to make one design, you ask only four minutes! What an enormous advantage! It is so great, indeed, that no person knowing both methods would employ the old one." From this time it is established that although both Niepce and Daguerre used iodine, the latter alone employed it with any degree of success, and the discovery of the use of mercurial vapor to produce the positive image clearly belongs to Daguerre. In January, 1839, Daguerreotype pictures were first shown to the scientific and artistic public of Paris,

The sensation they created was great, and the highest hopes of its utility were entertained. On the 15th of June M. Duchatel, Minister of the Interior, presented a bill to the Chamber of Deputies relative to the purchase of the process of M. Daguerre for fixing the images of the camera. A commission appointed by the Chamber, consisting of Arago, Etienne, Carl, Vatout, de Beaumont, Toursover, Delessert (Francois), Combarel de Leyral, and Vitet, made their report in July, and a special commission was appointed by the Chamber of Peers, composed of the following peers: Barons Athalin Besson, Gay Lussac, the Marquis de Laplace, Vicomte Simeon, Baron Thenard, and the Comte de Noe, who reported favorably on the 30th of July, 1839, and recommended unanimously that the "bill be adopted simply, and without alteration." On the 19th of August the secret was for the first time publicly announced in the institution by M. Arago, the English patent having been completed a few days before, in open defiance and contradiction of the statement of M. Duchatel to the Chamber of Deputies, who used these words:

"Unfortunately for the authors of this beautiful discovery, it is impossible for them to bring their labor into the market, and thus indemnify themselves for the sacrifices incurred by so many attempts so long fruitless. This invention does not admit of being secured by patent."

In conclusion, the Minister of the Interior said: "You will concur in a sentiment which has already awakened universal sympathy. You will never suffer us to leave to foreign nations the glory of endowing the world of science and of art with one of the most wonderful discoveries that honor our native land." Daguerre never did much towards the improvement of his process. The high degree of sensibility which has been attained has been due to the experiments of others.

Daguerre is said to have been always averse to sitting for his own picture, and there are but few photographs of him in existence. The one from which our engraving is copied was taken by Mr. Meade of this city, and first appeared in the *Daguerrean Journal*, a monthly periodical conducted by S. D. Humphrey and L. L. Hill, who were distinguished for their improvements upon Daguerre's process.

GELATINOGRAPHY.

A VERY rapid process to make newspaper illustrations, called gelatinography, is described in the following:

A black glass plate or a tin plate coated with black varnish, as used by sign-painters, is covered with plaster of Paris (gypsum) to a thickness of four-ply cardboard. The plaster of Paris must be of the best quality and reduced to a very fine powder. Add thereto some alum and some sulphate of barium, and in order to prevent the coating from being too brittle, add also a trifle of glycerine or of a gelatine solution.

This mixture must have the consistency of a thin pulp when applied to the glass or tin with a soft camel's-hair brush.

When dry, the artist may engrave into this coat of plaster of Paris, by means of a lithographic engraving needle, any design or picture with the greatest ease; the plate or glass is thereby laid bare, and design or picture appears black through the plaster of Paris coating. Mistakes or errors are easily remedied by filling in the plaster of Paris preparation.

With the regular printers' roller composition a stereotype is now made of the picture or design on the glass or plate, in the usual way; some bichromate of ammonia solution should be added to the roller composition, to make the stereotype hard enough for the type press, and it will be as durable as any electrotype, and answer the same purpose.—*Am. Lith. and Printer.*

STEREOSCOPIC PHOTOGRAPHY.—Of late, there is quite a revival in this branch of our art-science, several English and many foreign amateurs having been working with twin lenses during the last and present seasons. The Belgian *Bulletin* has an article on the subject, and the last technical meeting of the Photographic Society was devoted to it. Although Wheatstone announced the instrument in 1838, it was not until photography had come to his aid by furnishing satisfactory diagrams, and Brewster had popularized the matter by the invention of the lenticular stereoscope, that much progress was made; then Wheatstone gave his Bakerian lecture on January 15th, 1852, to put the finishing touch to this important branch of scientific work. The earlier attempts failed by reason of employing too wide an angle.

ECLIPSE PHOTOGRAPHY.

PROBABLY in no department of science, certainly in no branch of astronomical science, has photography been of such use as in the study of solar eclipses. It is only when the sun is obscured by the moon that we are able to see and properly photograph the corona or luminous atmosphere around the sun. This solar corona, as has been said by Young, "is visible only about eight days in the century in the aggregate, and then only over narrow strips of the earth's surface, and but from one to five minutes at a time by any one observer." Very little of the eight days, however, can be utilized; indeed, as has been pointed out by Miss Clerke in her admirable *History of Astronomy During the Nineteenth Century*, the corona has only been observed by scientific men during forty-five minutes in as many years. Opportunities of observing an eclipse occur therefore at such comparatively long intervals, the phenomena to be observed are so varied and extensive, and the time during which the observations must be made is so very limited, that any permanent records of the phenomena, such as photography enables us to obtain, cannot fail to be of the greatest value. The most careful drawings of the same eclipse by different observers at the same station are so very dissimilar that it is generally unsafe to base any conclusion on them; whereas in photographs we have truthful records of the actual phenomena without personal equation of any kind, and with the additional advantage that there is more detail in the photograph than it is possible to insert in any drawing made during an eclipse, or even at leisure after the three or four minutes' observation of such an indefinite and irregular object as the corona. The history of the increase of our knowledge of the corona is practically the history of the improvement of our photographic methods of attacking the phenomena of an eclipse.

The first occasion on which photography was used at an eclipse of the sun was on July 8, 1842, when Professor Majocchi, at Milan, attempted to obtain Daguerreotype pictures of the corona. His account of the attempt informs us that "a few minutes before and after totality an iodised plate was exposed in a camera to the light of the thin crescent, and a distinct image was obtained; but another plate exposed to the light of the corona for two minutes during totality did not show the slightest trace of photographic action. No photographic alteration was caused by the light of the corona condensed by a lens for two minutes, during totality, on a sheet of paper prepared with bromide of silver." No details are given of the apertures of the lenses employed, or of their focal lengths. At the outset, therefore, astronomers were met with failure, but the failure at Milan did not deter Dr. A. H. Busch and Herr Berkowski from a similar attempt at Konigsberg on July 28, 1851. The telescope used on this occasion had an aperture of 2.4 inches, and a focal length of 30 inches. Commencing immediately after the beginning of totality, a plate was exposed for 84 seconds in the focus of the telescope, and on development an image of the corona was obtained. A second plate exposed for from 40 to 45 seconds was fogged by the sudden breaking out of the sunlight. The picture thus obtained—the first photograph of the corona and prominences—is known as the Conigsberg Daguerreotype, and is still preserved at the Strasburg Observatory. It was lent by Professor Winnecke for the exhibition of scientific instruments at South Kensington in 1876. On it the prominences, and the lower portion of the corona extending about one-fourth of a solar diameter from the moon's limb, are distinctly shown, the encroaching of the prominences on the dark disc of the moon, owing to irradiation, being particularly evident.

Daguerreotype was again used for the annual eclipse of May 26, 1854, by Mr. Campbell and Professor Loomis at New York; by Dr. Bartlett and Victor Prevost, who obtained nineteen photographs, at West Point; and by Professor Stephen Alexander and Mr. E. H. Old at Ogdensburg.

Liais in 1858 obtained photographs of the partial phases, using wet plates. On one of these the moon can be seen projected on the corona before totality. With the introduction of the collodion process more sensitive plates were obtained, and a great advance was anticipated. At the total eclipse of 1860, July 18, Mr. Warren de la Rue, at Rivabellosa, in Spain, used wet plates. His instrument was one specially devised by himself for photographing the sun's disc for sun-spots, and is known as the Kew heliograph. It is an ordinary equatorial mounting with driving clock, carrying a photographic object-glass, 3.4 inches clear aperture, and 50 inches focal length. The primary image is .466 of an inch in diameter, but before the image falls on the plate it is enlarged by an ordinary Huyghenian eyepiece to 3.8 inches diameter. The exposing apparatus for the ordinary sun photographs is an instantaneous shutter; this, of course, had to be abandoned for the eclipse photographs. Two plates were exposed during totality, the exposure being 60 seconds in each case, but only slight traces of the corona were obtained. At the same eclipse Father Secchi and Professor Monserat, working at Desierto de las Palmas, obtained good photographs of the corona, using an object-glass of .15 metre diameter, and 2.5 metres focus, the primary image being 23 millimetres in diameter. The plates were placed in the primary focus and according to Secchi, "all the phases of the phenomena are represented on the photographs." The original negatives obtained at Desierto de las Palmas of this eclipse have unfortunately been lost.

The next attempt at photographing the corona was on August 18, 1868, this being remarkable as the first attempt to use a reflector for the purpose. Colonel Tennant and Sergeant Phillips at Guntoor used a 9-inch silver-on-glass mirror, by With, of 6 feet focal length, mounted equatorially by Browning on the Newtonian plan.

Unfortunately the weather was unfavorable, but plates were exposed through light clouds, the longest exposure being 10 seconds. The photographs obtained show the prominences sharply defined, but only slight traces of corona are visible. Mr. Sutton, at Mautawali Kiki, and Drs. G. Fritsch, H. Vogel, and W. Zener, at Aden, were, from atmospheric and other causes, unsuccessful with refractors.

At the eclipse of August 7, 1869, many attempts were made to photograph the corona. In all cases where the image was enlarged before it fell on the plate, slight traces of the corona were obtained; while Professor Winlock and Mr. J. A. Whipple, at Shelbyville, with a 5½-inch lens of 7½ feet focal length, obtained seven pictures taken in the primary focus, one with 40 seconds' exposure, showing more detail than had previously been photographed.

At this eclipse, Messrs. Hoover photographed the corona with a lens of 12 inches focus, and Professor Stephen Alexander also obtained photographs at Ottumwa some of which give good ideas of the coronal structure.

At the 1870 eclipse, December 22, a 4-inch Dallmeyer lens (rapid rectilinear), stopped down to three inches aperture, and with a focal length of thirty inches, was used by Mr. Brothers at Syracuse. Wet plates were used, and the photographs were taken through light clouds, the best of the pictures having had eight seconds' exposure. Details in the corona are very well shown in these photographs. In discussing his results, Mr. Brothers says, "The photographs taken . . . . prove that the light of the corona is very actinic, and that several photographs of this beautiful phenomenon can be taken during the time of totality." He further adds, "That it is impossible to obtain satisfactory photographs of the corona either with reflecting or refracting telescopes as ordinarily used is, I think, now conclusively proved."

Professor Winlock, at Jerez, during the same eclipse, obtained two good photographs with ordinary telescopes; while Lord Lindsay, at Maria Louis Observatory, with a 12-inch mirror of 6 feet focus, obtained plates so much fogged as to be useless.

On December 21, 1871, splendid photographs were obtained at Baikul by Mr. Davis (Lord Lindsay's observer), and by Colonel Tennant, J. B. Hennessey, Esq., and Captain Waterhouse, at Dodabetta. In each case Dallmeyer 4-inch rapid rectilinear lenses of thirty-three inches focus were used, the exposures varying from five to forty seconds. Herr Dietsch, in Java, also obtained two good photographs with a "lens of short focus," with exposures of half and one-third second. Captain Hogg, at Jaffna, also got fair results with cameras 16 inches and 23 inches long. At the eclipse of April 6, 1875, Dr. Schuster, in Siam, obtained good photographs, although small, with an ordinary camera.

The eclipse of 1878 marked another departure in photography. Dr. Draper used wet plates, and got much detail in 165 seconds. Mr. Ranyard used Mawson & Swan's extra sensitive dry plates, with a 13-inch lens of 6 feet 2 inches focus, and obtained photographs extending 6′ (one-fifth of a sun's diameter) from the limb with exposures of one and three seconds. Professor Harkness, the director of the American operations, arranged two cameras, with 6-inch Dallmeyer lenses of 37.9-inch focus, and Mr. J. A. Rogers and Mr. Clark with these, using specially prepared dry plates made by Mr. Rogers, obtained two good series of photographs. In the report on the eclipse operations published from the United States Naval Observatory, Mr. J. A. Rogers not only discusses the value of photographs as compared with drawings, but enters fully into all the details of eclipse photography, concluding by strongly advocating the adoption of dry plates. Mr. O. L. Peers during this eclipse obtained a wet plate photograph showing greater extension of the corona than any of the dry plate ones, but there seems some doubt about the apparatus he used. He used either a 2⅛-inch or 3⅛-inch Voigtländer portrait lens, and exposed either for twelve or for twenty-three seconds. Mr. Peers says he used a 2⅛-inch lens, and twelve seconds' exposure, while Voigtländer declares he makes only 3⅛-inch lenses of the focus 1 : 8 Mr. Peers used, and on examination of the photograph it is found that the trail of the moon on the plate indicates an exposure of twenty-three seconds. After the 1878 eclipse dry plates were universally adopted by eclipse observers.

The photographic arrangements of the expedition to Sohag, in Egypt, for the eclipse on May 17, 1882, were made by Captain Abney, the chief objects of the expedition being to photograph the spectra of the corona and prominences. Arrangements were also made by Captain Abney for corona photographs with a 4-inch lens of sixty inches focus belonging to him. The spectrum photographs taken show as many as thirty lines in the prominences, while the photographs of the corona obtained by Dr. Schuster with exposures of from three to thirty-two seconds show great extension of the corona with the most exquisite detail. These plates are also remarkable for the discovery of a comet in the photographs, although the comet was not seen by observers. Captain Abney and Mr. J. Norman Lockyer were responsible for the methods of photographic attack adopted by the English observers, Messrs. Lawrence and Woods, at the Caroline Islands, on May 6, 1883. The spectroscopic results and the corona photographs taken with the 4-inch lens of Captain Abney, previously used in 1882, were most successful. Janssen on this occasion used two objectives, one 6-inch and one 8-inch diameter, and using long exposures, photographed the corona extending two diameters from the sun, this being much further than it could be traced with a telescope.

Photography was again used on September 8, 1885, at the total eclipse in New Zealand.

At the eclipse of August, 1886, visible at Granada, Captain Darwin used a chronograph as devised by Dr. Huggins, consisting of a mirror inclined in a tube in such a manner as to enable photographs to be taken in the primary focus without the intervention of a flat. Good results were obtained. Dr. Schuster and Mr. Maunder used 4-inch lenses of 60-inch focus, and obtained good results. Their spectrum photographs were also successful. Professor Pickering, of Harvard, used a heliostat and a photo-heliograph of 38 feet focus, supported horizontally, but no results were obtained with this apparatus, although he was partially successful with his other instruments.

Very few photographs were obtained of the eclipse of August 19, 1887, in Russia, owing to the unfavorable weather. The English observers intended to use similar instruments to those employed in 1886, but the weather did not permit.

The eclipse of January 1, 1889, was very successfully photographed by the American observers, the largest aperture used being thirteen inches. On some of the plates used during this eclipse the standard intensity scale recommended by Captain Abney several years ago was fixed, and for the first time definite conclusions as to the brightness of the corona were obtained.

The expedition sent out by the Royal Astronomical Society for the eclipse of December 22, 1889, were each fitted with a 4-inch photographic lens, belonging to Captain Abney, mounted on the usual equatorial plan, and intended to continue the series so well begun by Dr. Schuster in 1882, and also with a 20-inch mirror of 45 inches focus, specially constructed and mounted for eclipse work, and designed to photograph the outer portions of the corona too faint for ordinary instruments. The plates for use with the 4-inch lenses were specially prepared by Captain Abney, and on each of them he had placed a scale of standard intensity squares for measuring the brightness of the corona. Small squares on each of the plates were exposed to a standard light for various times; these squares were then covered with a strip of black paper, and the plates taken out to the Eclipse Station and exposed on the corona. When the plates were developed the image of the corona and the squares were, of course, developed to the same extent, the squares thus serving as standards for absolutely measuring the photographic intensity of the light of the corona. The density of the deposit in any part of the picture of the corona can be compared with the density of the most similar of the squares on the same plate by Captain Abney's photometer, and as this photometer depends upon the method of limiting apertures, it gives absolute readings.

The African expedition was entirely unsuccessful, owing to clouds, but the expedition to Salut Isles, under charge of the late Father Perry, obtained successful photographs, which are at present under examination. From them Captain Abney will be able to measure the absolute photographic intensity of the light of the corona.

An American expedition was sent to Cayenne with instruments used on January 1, 1889, and obtained successful photographs, while an American expedition to Southwest Africa was unsuccessful, for the reason already given. This expedition, under the direction of Professor David P. Todd, was located at Cape Ledo, about half a mile from the English Eclipse Station.

Several new departures in eclipse photography were introduced. Chief amongst these was the remarkable apparatus by means of which no less than twenty-three objectives and two mirrors were accurately pointed at the sun and caused to follow it by one large clock. A large duplex polar axis (the old English form as used for the 12.5 inch reflector at Greenwich) was mounted on solidly constructed stone piers and very carefully adjusted. This axis is constructed of 6-in wrought-iron tubing, the total weight being about 2000 lbs. In it the cameras were fixed by set screws, the optic axis of the instruments being adjusted parallel to each other, and at an angle equal to the south polar distance of the sun at the time of totality. The carefully regulated and very powerful clockwork attached to the instrument caused the polar axis to rotate, and thus the whole battery of instruments followed the sun. Each lens was fitted with a pneumatic shutter regulated to give the required exposure in each case. The cameras themselves were enclosed in a dark room, the lenses only being exposed to the sun, so that dark slides were not required, the plates being held on open rotating frames, these frames being rotated at the proper time by pneumatic arrangements. When the cameras were once pointed, and the clock driving properly, all the operations of exposure and changing of plates were performed without personal superintendence by means of the pneumatic apparatus, and a chronograph attached to the valve system of this apparatus recorded the exact time at which each exposure was begun and ended.

It is to be regretted that this ingenious and elaborate apparatus did not have a satisfactory trial, owing to the dense clouds; but Professor Todd assures us that he was thoroughly satisfied with the success of the pneumatic movements during the three minutes ten seconds he brought it into operation at the time of totality.

It is not improbable that (in spite of the great strength and weight of the axis and the solidity of the supporting piers) with this plan of fixing a large number of cameras and spectroscope on one polar axis, the constant opening and shutting of shutters, and the changing of the plates, may produce so much shake that none of the long exposure photographs will be satisfactory. This, of course, can only be ascertained by the use of the instrument on the corona, and several years must elapse before the trial can be made.

Another unusual instrument was a photo-heliograph of five inches aperture and forty feet focus, mounted on a combination of the equatorial stand and tripod.

The long tube was made of iron, coiled spirally and strongly riveted, the necessary rigidity being attained by strong wires extending from end to end, and tightly stretched by a disc in the middle of the tube. Close to one end of the tube the polar axis was attached by a universal joint; the other end of the tube being supported by two rods, one on the east and one on the west side, these rods being also attached by universal joints. By means of these rods the proper inclination was given to the tube. The east rod was the declination rod, and was capable of sliding along the polar axis. The west rod was for giving motion in right ascension, being terminated at the free end in the form of a piston of a sand clock fixed in an inclined position. The rate at which the sand escaped from the cylinder could be accurately regulated, so that the rate of descent of the piston was completely under control, and was, of course, such as would cause the instrument to follow the sun.

This instrument was erected at Cape Ledo, close to a hill of such inclination that the sun could be followed during the whole of the eclipse, while the long tube could be manipulated with greater advantage than would have been possible if the instrument had been erected on level ground. The hot air rising from the heated hill probably affected the definition in the photographs, but under the circumstances that could scarcely be avoided.

This form of mounting certainly solved the question of the possibility of using long-focus lenses mounted as direct photo-heliographs, but the apparatus is certainly unwieldly, and was only got into the fit state that it was on the eclipse day by the very great care and patience of Professor Bigelow. As it was intended principally to photograph the partial phases of the eclipse with this instrument, instantaneous exposures were arranged for, but Professor Bigelow succeeded so well in the adjustment of the instrument and the regulation of the sand clock, that he would have tried to obtain photographs of the lower corona with it had the weather permitted.

The photographic apparatus on this instrument has a very ingeniously constructed revolving plate holder, carrying round plates of twenty-two inches diameter. The exposing apparatus and the apparatus for rotating the plate between the exposures were moved by pneumatic arrangements, exposures being made at intervals of six seconds, the exact time of each being recorded on a chronograph. As no dark slides were used, it was necessary to enclose the whole of the photographic apparatus in a dark room. One hundred and ten exposures were made with this telescope during the partial phases of the eclipse, all the photographs taken having to be obtained through clouds.

In several expeditions previous to this, where more than one kind of observation has been required, two or more objectives have been mounted on the same stand and driven by the same clock; but this plan is always open to the objection that any accidental disturbance in the manipulation of one of the pieces of appparatus will most probably spoil the results for both. With the American plan of many objectives on one heavy axis, and a pneumatic apparatus to manage all the actual operations of exposures and changing of plates, this objection of possible accidental disturbance is to some extent overcome; but the shake of the many operations taking place on the one axis introduces another risk. Beside this, the apparatus is very heavy, and exceedingly difficult to transport and erect, even in a civilized country.

Such is a very summarized account of the instruments hitherto employed, and it seems to me that the time has now come when much can be gained by the employment of fixed instruments and a moving large plane mirror. This idea of using a heliostat is, of course, not new, for it has been used several times on a small scale, and for special purposes. There is nothing beyond the difficulty of making a plane mirror sufficiently large for the work to prevent the adoption of this method in the future ; and this difficulty now has ceased, as it is only a matter of time and labor to make plane mirrors of sufficient size. With a large plane mirror, twenty inches or upwards in size, mounted on a heliostat mounting, and so arranged as to reflect sunlight into a series of instruments rigidly supported in a horizontal position, the difficulties of eclipse observers will be very considerably lessened. The one driving clock will keep the pencil of light constantly in the same direction, and this can be used partly for photographing the corona, partly for spectroscopic work, partly for polaroscopic observations, and so on for any other purposes, the whole of the instruments being fixed in the best possible positions for the observers. Practically, with a large flat mounted in the manner indicated, we can fix any portion of the sky we require to observe, and to do it we can point as many instruments as we can crowd into the pencil, each instrument being quite independent of the others. The length of focus of an objective would not introduce any difficulties on this plan, for the length of the tube is of little importance when it can be fixed in an horizontal position. The observers at the Eclipse Station only have one astronomical adjustment to make, *i. e.*, that of the position of the heliostat, and only one driving clock to regulate. This clock, since it has only to move the weight of the plane mirror and its mounting, can be more accurately made and regulated than is possible with a clock when it has to carry the weight of the tube and heavy axis of an ordinary telescope. The positions of the observers are more easy and natural during the precious seconds of totality; or, if personal superintendence is to be abolished in favor of the American pneumatic apparatus, this suggested arrangement of the instrument is better fitted for the pneumatic attachments than the old plan is. The whole of the photographic apparatus can be fixed up in a dark hut or under a dark tent with far less trouble and risk of stray light than is possible with the old manner of mounting.

The cost of a good heliostat mounting is about the same as that of a good telescope, and with one heliostat we can do the work of at least half a dozen of the usual instruments. A. A. COMMON, F.R.S., and A. TAYLOR, A.R.S.M.

THE Supreme Court at St. Paul, Minnesota, handed down a decision on July 1st in the case of Ida Moore, of Minneapolis, against Photographer Rugg. Rugg sold a copy of Mrs. Moore's picture, which was put on exhibition in improper places, much to the discredit of the lady, and she brought suit for damages. The Supreme Court holds that it is a case in which there is ground for the recovery of damages ; that the photographer has no right to dispose of pictures which are the sole property of the sitter. The decision is an important one. Similar cases have arisen once or twice previously in other parts of the country.

GENERAL NOTES.

A NOVEL CARBON PROCESS.—Mr. O. Volkner publishes the following dust carbon printing process, which appears to be easy to carry out, requires no reversed negatives, and yields permanent prints. We also think it can be used in making phototypic printing blocks. Make a solution of gelatine in water 1-60, and draw sheets of good strong paper through it, and hang it up to dry. Wet it again and squeeze it down on a piece of glass. Now brush over it a solution of ten parts gelatine, ten parts gum arabic, twenty parts white sugar, eighty parts distilled water. While still quite moist put it in a dusting box (such as used for photogravure) which contains a mixture of 100 parts of white dry sugar and five parts of French lamp black. After a lapse of eight to ten minutes, withdraw it and you will find it covered with innumerable particles of dust. Paper thus prepared will keep, and has to be sensitized in a bath of fifty parts bichromate of potassium, fifty parts bichromate of ammonia, six thousand parts water and aqua ammonia, until it assumes a light yellow color, and at last, to avoid the too quick dissolution of the gum arabic, immerse in twenty parts chromic acid in 1,500 alcohol. Print by Vogel's photometer 16° to 18°. To develop, use warm water first, and afterwards cold, leaving the print for several hours in water, to which may be added a little aqua ammonia, in case the printing was carried too far. The prints show a singular and very pleasing grain and need no transferring.—*Dr. Eder's Jahrbuch.*

EVERY photographer is, no doubt, to his own sorrow, familiar with a yellow stain in the negative, caused by taking the plate from the fixing bath before it is thoroughly fixed. Mr. Belitski, the well-known photo-chemist, made some experiments recently to remove this stain, and succeeded very well. A slight stain can often be removed by placing the negative in the following solution : 50 parts alum, 1000 parts water, 10 parts bichromate of potassium, 20 parts muriatic acid. After several minutes the negative turns yellow all through. It is washed now very thoroughly, exposed to sunlight for several minutes, and developed or blackened with the ordinary iron developer. When the stain is very intense this remedy will not prove to be of any avail, and only by leaving it for twenty-four hours in the Lainer acid fixing bath (so often described in all journals recently) he succeeded in removing the stain and saving a valuable negative.—*Deutsche Photographen Zeitung.*

THE article on "Fixing Plates" which appeared in our June number, page 163 should read in the heading "Fixing Prints." Our readers have doubtless discovered this for themselves before now.

Negative by
W. H. Stauffer,
Asbury Park, N. J.

Published by the
American
Journal of Photography.

AMERICAN ACADEMY
JUL 31 1890
OF ARTS AND SCIENCES.

AMERICAN
JOURNAL OF PHOTOGRAPHY.

Published by THOS. H. McCOLLIN & CO.

VOL. XI. PHILADELPHIA, AUGUST, 1890. No. 8

THOS. H. McCOLLIN, Managing Editor. **J. F. SACHSE, Associate Editor.**

THE CAMERA THE HISTORIAN OF THE FUTURE.

AMONG the manifold uses of the camera and photography in the various departments of the sciences and arts at the present day, both as a profession and pastime, no field opens wider nor shows greater possibilities than that of photo-historiography. With the great improvements which have lately been made in portable apparatus, and the simplification of the various manipulations and formulæ, together with the perfection of permanent processes, photography is destined soon to take its place, we may well say, as the historian of the future. The camera, with its great recording eye, will not alone pictorially depict the passing events of the day, but retain the appearance of the fast crumbling landmarks and monuments of the past; it will duplicate the features of the present generation, as well as permanently renew the old fading portraits and yellowing parchments, thus preserving them for the students and searchers of the future. That such photographic records will before long become the one thing needful in connection with every country, society, or other body having any interest in its history being handed down to posterity, will be apparent to all.

This fact is being recognized in different parts of the world. We already read of photographic surveys of various localities, castles, and historic buildings in England; of the "Ausflüge" of the photographic societies in Germany; the efforts made to reproduce old paintings, documents, and engravings in Vienna. The glorious photographic detail survey of the Basilica of Saint Mark, at Venice, in Italy, consisting of six hundred and fifty plates in five large portfolios, executed under the patronage of H. R. H. Margaret of Savoy, Queen of Italy, the work having been commenced in 1878 and completed in 1885, by Ferdnando Ongania, and a numerous corps of assistants. The majority of these plates are reproduced by the heliotype process—others in colors, by cromo lithography. How thoroughly the work was done may be surmised from the fact that the entire facade was divided into twenty-one sections. Yet so exact is the work that the plates fit together exactly, forming one large picture, 8 ft. 9 in. long by 5 ft. 9 in. high. This valuable collection of plates shows completely all the decorative features of both the interior and exterior of the grand ecclesiastical edifice. Every detail being taken directly from the actual object by the camera, and reproduced by the phototype process in printer's ink, this collection, besides serving as a basis for any renewal or restoration that may be necessary in the course of time, will transmit to students in all parts of the world, as well as to posterity, a faithful record of the splendid ecclesiastical monument in the state of preservation in which it is found at the present time.

A somewhat similar work has been done on the Alhambra, in Spain ; while from far-off Australia comes the news that some hundreds of photographs have been collected of the leading men who assisted to lay the foundation of Victoria, and which had been reproduced in a uniform size, thus forming an interesting volume which in time will prove one of the most valuable historical records of the colony. In our own country this subject has not received the attention which it deserves; it is true a few individual efforts may have been made in different parts of the country, but in most all cases without any definite system, or without any intention to thoroughly exhaust the territory. A work of this kind, to be of future historic value, must be done conscienciously and intelligently, as well as in a systematic manner, and those who undertake the task should be thoroughly posted, not alone in the general and local history of the territory and subjects at which they wish to point their camera, but also train their eye for the salient and important parts, to say nothing about the picturesque bits of the subject, no matter how unpromising it may appear from an artistic standpoint at first sight.

In a work of this kind, negatives are apt to increase in number rapidly, and at the very outset, after the survey is completed, a new difficulty presents itself, viz., how best to utilize the prints to the best advantage for future use and availability; and it is here where we must look to the expert book-binder, as well as the photographer or silver printer. As is well known, the regular albumen prints are so apt to twist or warp so as to make them almost useless for book-work. Turning to the new "permanent" processes, where the plates could be printed on heavy plain paper, masked so as to show a wide margin, same as an etching or steel engraving, all difficulties were thought to have been overcome. This was notably the case with the platinum process, but here again a difficulty presented itself from the fact of the prints having to be developed in hot chemicals, the paper loses its sizing, opens the fibers, and becomes tender, and the white margin soon turns yellow. The same may be said of some of the bromide papers. Phototypes would seem to present the best results for our purpose, but as at present produced, and on account of the small editions, would be out of question on account of the expense involved. The welcome news, however, comes to us from Vienna and Paris that the process of producing these reproductions has been much simplified. In Paris, amateur outfits for "phototypie" are already offered for sale. If this process is practicable and cheap it may solve the problem, especially as there can be no question as to the permanency of printer's ink.

The first complete copy of a photographic survey which has been made in this country, so far as has come to the knowledge of the writer, was shown a short time ago at the rooms of the Historical Society of Pennsylvania. The subject was the old religious community at Ephrata, and consisted of fifty silver-prints, 4x5, mounted on heavy cards 7x10, a print being mounted on each side of the mount. They were burnished by a peculiar process, so as to overcome as much as possible the twist of the cards. These pictures reproduced all the different buildings still standing which had formerly been used by the community; the various interiors were also portrayed, together with the mystical inscription upon the walls; then came the various detail of the construction, such as unique portals and quaint staircases; then followed some specimens of their peculiar musical MSS., so highly valued by all bibliophiles, the series concluding with the mossy and crumbling tombstones which mark the resting place of these old religious pioneers, who unto death upheld their Sabbatarian doctrine. Between each two cards a page of heavy bond paper was inserted, upon which was engrossed a short sketch or description of the picture on the page opposite. A title page and full index preceded the illustrations. The mounts were hinged at the back, and the whole was bound in a rich morocco cover. The volume formed a unique book which may well be classed as an "edition de luxe," irrespective of its great historical value. As a matter of course, the limited demand for any such a work would debar the average professional from undertaking the photographic part. The same reasons apply to the printing of the descriptive pages or inserts.

In the meantime, until the difficulties which so far present themselves shall be overcome, we would suggest that wherever a photographic society or historical association exists, work of this kind should be encouraged, and some provision be made for preserving such negatives as may be given them, or means taken at least to obtain a print from any such negatives of value. These prints, when properly mounted, classified, and indexed, must prove of great value and interest in the near future.

JULIUS F. SACHSE.

SUCCESS IN PORTRAITS.

I AM going to offer a few more remarks upon the portrait branch of photography, and I will ask all experienced workers to give what I have to say the go by, recollecting that while what is here told may be familiar enough to them, there are a great many enthusiastic ladies and gentlemen providing themselves with cameras every day, and scanning photographic literature for helps, to whom assistance will, I am sure, not come amiss.

There are a few broad principles underlying success in the taking of portraits, which if properly understood at the outset lead rapidly to success, and without a knowledge of which, the aspirant will inevitably waste his time and materials, and find himself disposed to set aside in disgust, an occupation which ought to prove with proper guidance an endless source of interest and pleasure to himself and his friends.

First let us call attention to the importance of simplicity in our arrangements and effects. In mechanics it is well understood that simple contrivances are generally better than more complicated ones, but the mistaken impression seems now to prevail in relation to artistic productions, that the more complex and over-crowded they are, the higher they must stand in the scale of excellence.

The mind should be impressed, not distracted, and a work of art to be impressive, must tell its story simply and directly. Its objects should be suitably grasped, and its light and shadow collected into broad masses. All that we admit, as we proceed, to give fulness and interest to our subject must yet remain subservient to the larger and simpler parts, and it must be constantly remembered that the more we introduce by way of embellishment the more we are likely to drive away the attention and destroy the breadth and unity of purpose in our picture. When we set out to make a portrait, we must bear in mind that the head and bust of the individual are the aim and end of our work. Anything else that is introduced must not only be entirely subservient to this main end but should be as far as possible in harmony with it.

It is very difficult to secure about residences and homes generally the breadth of lighting and repose of background that are necessary to the production of a good portrait, and it is for this very reason that I am particularly induced to urge the necessity of bestowing a little time and pains upon a few necessary arrangements before attempting to expose plates upon heads.

First as to the matter of lighting, good portraits can never be made in any situation where the lighting does not extend above the level of the head, because all under shadows are destroyed, and the important modeling which gives expression is lost. For the same reason out-door pictures taken in a diffused light are seldom good, and we may here add that under the latter condition it is impossible to secure a calm tranquil expression, owing to the effect of the glare of light upon the eyes. Whether the work be attempted in an apartment or out-of-doors, the conditions should in a general way be the same, namely the direct light should come upon the sitter as nearly as possible at an angle of forty-five degrees, and somewhat from the front. It matters little whether the amount of light be great or small. It may be merely what may proceed from a little window near the top of an apartment with a high ceiling, or the whole of an out-door light which happens to be cut off eight or ten feet from the ground and sheltered still higher on two sides. It will be seen that the former condition is absolutely unattainable in an apartment with a low ceiling, while the latter may readily be got in the city in back yards where there are high walls and high board fences with big spaces of overhead light, and in the country where walls and shrubbery very often gives us virtually the same conditions.

Heads taken under porches can never make good pictures, because all the overhead light is cut off, and if the sun happens to be shining upon the floor of the porch or light earth in front of it, we have a lighting precisely analagous to that produced by the stage footlights upon the players, which is abominable to artists.

After lighting, the next most important matter is to see that we secure a quiet background. The beginner in portraiture is apt to be so absorbed in his sitter that he rarely thinks of what may happen to be back of the latter, and if there should be a combination of strongly defined objects near enough to be in focus, the head is lost in them, and the picture is spoiled. It so rarely happens that we find a quiet space in front of which to pose a sitter, that it is much better to provide ourselves with a suitable piece of quiet gray drapery, or to stretch some muslin on a slight frame a couple of yards square, and tint it with a coating of distemper, and this gives us the additional advantage of being able to grade our background from a light tint on one side, or corner rather, to a darker at the other, which not only varies it and prevents monotony, but will enable us to relieve the light side of our head of a dark ground, and *vice versa.*

The matter of posing the sitter must be governed chiefly by the character of the individual and the tact of the operator. Bolt upright stiffness should be avoided on the one hand and lolling on the other. Too much action rarely does well. It gives an appearance of affectation. Direct front views seldom make agreeable pictures. The head turned slightly around either way from the camera is the best—and the camera should, in a general way, be about on a level with the head of the individual being taken, if any difference, rather below than above. It gives more look of dignity to a face to look up to it, than to be looking down upon it. Too low a point of view diminishes the forehead and exaggerates the lower part of the face.

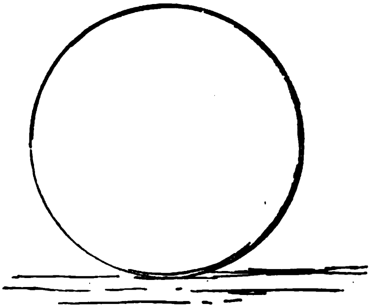


FIG. 1.

Light and shadow is the soul of art, and as photography expresses form by light and shadow only, the sooner the photographer makes himself acquainted with its mysteries and beauties the better. As I can sometimes illustrate better what is meant by a few rude scratches with the pen than I can can by words, I will take these means of making my meaning more clearly understood.

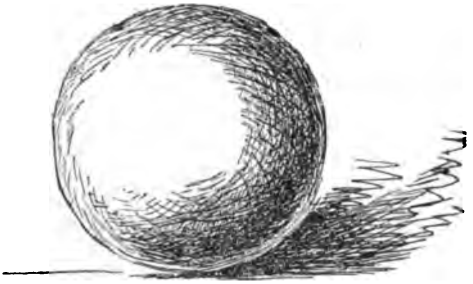


FIG. 2.

When we draw a circle, as in Fig. 1, we merely lower a space enclosed by a line. Nothing more. But when we introduce light and shadow, as in Fig. 2, we have a clear representation of a sphere. And, if we go still further, and by calling art to our aid, we cast a shadow from the sphere, and vary our background; as in Fig. 3, we have a picture in a very simple stage. Now, trifling as this seems, it is yet vitally essential to our purpose, because in dealing with a head we are simply dealing with a sphere—and at this point I must call attention to a fact of vital importance; namely, that lights give the impression of advancing upon the eye, while shadows recede. If this fact were better understood, there would be more good portrait work done. In Figs. 4 and 5, I have shaded the sphere in such a manner as to demonstrate the capability of light and shadow to give an appearance of flatness and a sort of concavity. It will be seen from these hints how we may make a head and face appear round and full and well-developed, or flat and mean and hard.

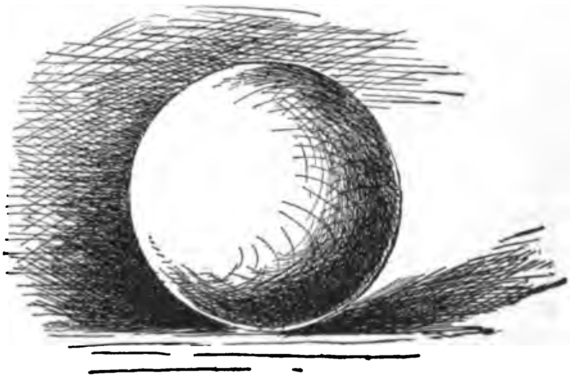


FIG. 3.

Such a lighting as that exemplified in Fig. 5 is one often seen in bad photographic portraits. The deepest shadow on the dark side is destroyed by the injudicious use of a reflector, and we have the greatest dark next to highest light, without any intervening half light, which produces a harshness that is very objectionable.

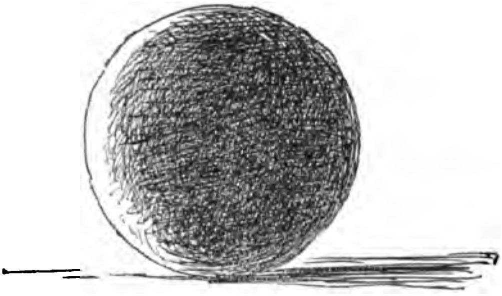


FIG. 4.

The uncultivated have no knowledge or understanding of light and shadow in its relation to art, and portrait painters have always had to work under the disadvantage more or less, of having their work misunderstood in that part which relates to the modeling of the head and features by light and shadow, people generally too often looking upon the shadows under the projection of the eyebrows, nose and chin as mere blemishes which should be removed. Many amusing anecdotes might be cited in connection with this misconception of artists' work, one of which comes to mind which I think has not been written. A gentleman was being shown a fine portrait by Sully. After looking at it for some time in a puzzled way, he put his finger on the nose, and looking inquiringly at the painter said, "Is this a toad in a hole—a toad in a hole?"

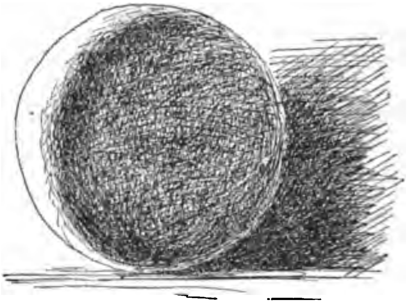


FIG. 5.

The popular portrait painters, when that art was in its flourishing days, which was before the invention of photography, were not those who painted the best artistic heads. Then, as it is now, in the successful prosecution of the later art, the demands of the masses had to be catered to, vigorous light and shade had as far as possible to be dispensed with, all wrinkles and marks of character and truth omitted, and a slicked-up, polished surface obtained, which brought all to a commonplace mediocrity. I will say here, too, that it is a great pity that the present vulgar rage for novelty demands a setting aside of that which has been proven to be excellent, and puts in contempt certain excellencies which are based upon good natural laws and which it is not possible to supplant by others that are better, often, unfortunately, not nearly so good. Posing heads so that the entire face is in shadow, or in half shadow, and relieving off a white background, or lighting the face sharply or harshly on one edge, or having a glare of diffused light over the face, are mere tricks, and however much they may captivate on the instant, they will never wear well. Such work will inevitably after a time be cast aside.

Let us exhort beginners to bestow all the pains they can upon their work. Let them think it worth while to make a few essential preparations about lighting and backgrounds, and then if they will study the works of good portrait painters, nothing could be better than engravings of the portraits by Vandyke, Reynolds, Reaburn, and many others, they will at once be on the road to success in the art of making good photographic heads.

XANTHUS SMITH.

PHOTOGRAPHY AND BUSINESS.

IT is a very pleasing and encouraging thing to hear as old and experienced a member of the craft as Mr. Rockwood, of New York, say that he has been in active business for four and thirty years, and has never felt sorry at his choice of the art of photography as a calling.

In these days of plentiful, not to say superabundant, photographic literature, we find the two philosophical extremes of the optimists and the pessimists fully represented in our journals and annuals, and we regret to say that there are not wanting those whose views upon photography, particularly in its financial aspects, are directly the reverse of those expressed by Mr. Rockwood.

We are by no means disposed to take part in the discussion whether or no photography is a good means of earning a livelihood. We might as well waste time in inquiring whether it were worth while to raise cattle or vegetables as a means of making a living. We may dismiss this matter by simply saying, that having done our best to support our calling, we have found it to support us in return. If we were asked whether our business life had been free from trials, perplexities, and sometimes bitter discouragements, we should plainly answer No ! and then ask our questioner what calling he could recommend that was thus free from all vexations. We can occupy space and time to better advantage here by pausing, as it were, for a little, and looking about us at the present condition of the photographic world, particularly here in America.

The first thing we notice, and greatly do we congratulate our fellow-members of the craft upon it, is the vast increase in the number of applied uses of photography. Aside from the well-worn ruts of portrait-making under the skylight, and ordinary landscape photography, we find new fields of industry in literally every direction we turn to. Interiors—easy, pleasant and profitable work; portraits and interiors at night, either in public or private, also pleasant and profitable, if not quite so easy. Printing, either by the old or by any of the numerous new methods, - profitable and easy. Lantern-slide making, perhaps the most fascinating branch of practical photography, and one that is increasing in importance every day in the year. General business photography, including the photographing of real estate for advertisement, of samples of goods of every possible description for commercial houses, of enormous numbers of small portraits of celebrities for increasing the ready sale of various articles like cigarettes, etc.; photography in conjunction with the microscope, and the incessant calls upon the art made by scientific students and professors of all grades. We merely mention these few of the multitudinous uses of photography, so that if any one should be a little discontented with the art as being narrowing and cramping in its tendencies, he may be set to thinking of the matter, and see that the fault lies in himself and not in photography ; and further, that if one kind of photographic business does not suit him, there are plenty of others for him to select from and pursue.

The question has frequently been raised whether the money-making side of photography was not seriously affected by amateurs and amateurism. Now we have always held to the opinion that the greater the number of amateurs, the greater the benefit to the profession. We know very well of the bitter complaints from certain quarters, that the local amateurs take away the business from professional men. But we are glad to see that these complaints grow fewer in number and less loud every year. Besides this, there is one point that these grumblers always lose sight of—namely, that immediately upon an amateur's receiving pay for his work, he ceases to be an amateur, and enrolls himself amongst the professional members of the craft. We can indeed recall certain instances in which so-called amateurs had the effrontery to take pay for their work and print their names and addresses with the title " amateur " on their card mounts, like any regular member of the calling. This might be taken as conclusive proof of the gross ignorance both of the " amateur " and of the public he attempted to cater to, for everybody has always known, or been supposed to know, that an amateur in any science or art is one who follows it for amusement only, and receives no pay for his work. This, at least, is the conventional or commonly accepted sense of the word " amateur," but we are afraid that the more elevated as well as the more literal meaning of the word is too often overlooked entirely. Properly rendered, " amateur " means one who loves (Latin *amo*, I love), and one who thus really loves his art does not disgrace it and himself by such shabby tricks as we have referred to. If he does these mean things, and tries to call himself an amateur, he should be told that his receiving money has effectually banished him from the ranks of true amateurs, and that he is deserving of such treatment as the members of liberal callings visit upon the heads of those scab members who attempt to debase the same. The extent to which photography is indebted to the *real amateur* is a matter so well known that we need hardly mention it.

Out of the large number of amateurs now practicing photography, there are many who are already, or who may in time become, of money value to the professional man. Men of business well enough off to make frequent trips to Europe and less known portions of the earth, generally find it all that they can do to make the exposures while *en route*, and will not require much persuasion to leave the routine laborious work of printing and mounting to the professional photographer. In most cases, if lantern-slides or enlargements of any kind be required, the same plan will be pursued, and a very fair profit made. Scientific men of all sorts, physicians, astronomers, and others, are paying more and more attention to photography, but it generally amounts to their making the negatives only, and leaving the printing to the professional man, as well as the developing also sometimes. All of this of course benefits the photographer, and he would be a more than commonly stupid person who would not endeavor to extend and increase any opportunities of the kind that might offer. When we get into the " upper ten " among amateurs, we shall frequently find wealthy would-be æsthetes who prate learnedly about lighting, Rembrant effects, " Truth in Art," etc., etc., and consider the manual labor of printing from their negatives quite beneath them. We should not at all object to receive profitable work from such people, and in many cases might look forward to regularly instructing them, after a time, in the art of how to make a negative, for let us here remark that as a general rule, the louder the art-talk of an amateur, the more detestable is his work photographically, and often artistically as well.

From our point of view then, which in photographic matters is always that of the optimist, we regard amateurs as valuable to the profession in the strictly business sense.

Efficient assistance in the working of a photographic business is a necessity, and here the question will arise how and what to teach growing lads who have entered our employ with the *bonâ fide* intention of making photography the business of their lives. For our own part, we should prefer the assistance of any ordinary steady person, after a reasonable time of instruction under ourselves, than that of a stranger appearing with highly-worded testimonials, and who was obstinately set in his own formulæ and ways of manipulating. A boy starting out to learn the business, should be made familiar with the processes step by step, and gradually advanced to such difficult portions as developing and toning, and during this time of instruction we should keep his interest alive by allowing him to assist, now and then, during the posing and lighting; if he manifests any of the ideas which might in time make him a good person to handle sitters, train him for this also, by sending him to art exhibitions, or in default of these, set him on a regular course of art study from first-rate photographs and illustrated books. At the end of a year or eighteen months, we should expect a very fair assistant from a young man whom we had thus taught, so far as the mechanical parts of the business are concerned, and one in whose hands a large portion of the business could safely be left in the event of our own absence. In regard to the salary paid, we may call to mind that while the heavier parts of the work are best done by men, the operations of trimming and mounting prints and binding lantern-slides is quite as well, if not better done, by women and girls, who would probably consent to work for smaller compensation. Indeed the neatness of handling required in printing renders it a peculiarly fit employment for women.

Amongst other things that are in favor of the photographer from the business standpoint, are the lower insurance rates charged, and the lower price of apparatus. If those who quarrel with the insurance rates, had been in active business a few years ago when ether and gun-cotton had to be kept on hand in comparative large quantities—and risks paid accordingly—they would see how vastly things have changed for the better since the introduction of gelatine plates. The lower prices of apparatus, even in spite of the high wages demanded by skilled labor, show that there has been improvement in making the apparatus of a solid, practical character without unnecessary outlay of the skilled labor in excessive finishing, so that the camera (or whatever else it might be) was made to resemble a piece of ornamental bric-a-brac.

In concluding, we can truthfully express our feelings as being, on the whole, well satisfied with matters in general, and can thankfully say, in the words of a well-known volume, "Godliness with contentment is great gain." ELLERSLIE WALLACE.

TRAITE ENCYCLOPEDIQUE DE PHOTOGRAPHIE. By Dr. Chas. Fabre. (Paris: Gauthier-Villars and Fils.) The number last to hand finishes the subject of printing on silver paper, dealing most completely with the after-processes of enamelling and embossing portrait-prints, etc. Instructions for gelatino-chloride, bromide and transferotype work are next given, and include all particulars of the making of the papers. This encyclopedia has throughout been marked by the thoroughness with which the subjects have been treated, and the amount of somewhat obscure but useful information which it has contained. To the photographic experimenter and investigator the *Traité Encyclopédique* should prove an invaluable publication.

THE PHOTOGRAPHY IN NATURAL COLORS.

IN view of the widespread attention which the experiments in photographing natural colors by Francis de Veress, of Kolozsvar, as published in the AMERICAN JOURNAL OF PHOTOGRAPHY for May (pp. 132-3), has attracted in this country and Europe, we reprint a short notice on the same subject, as printed in an American magazine in the year 1851, together with the latest experiments on the same subject in France. Similar investigations are also being pursued by the leading photographic scientists in Germany, and we should not be surprised if something of practical value may result from this widespread interest and research.

The experiments (in 1850–1) for the production of photographs in natural colors appear to have been carried on simultaneously by Mr. Hill in this country and by several persons abroad. The *Athenæum* says that in some experiments made by Sir John Herschel a colored impression of the prismatic spectrum was obtained on paper stained with a vegetable juice. Mr. Robert Hunt published some accounts of the indications of colors in their natural order obtained on sensitive photographic surfaces.

These were, however, exceedingly faint, and M. Biot and others regarded the prospect of producing photographs in colors visionary,—not likely, from the dissimilar action of the solar rays, ever to become a reality. M. Becquerel has a process by which, on plates of metal, many of the more intense colors have been produced; but it appears to have been reserved for the nephew of the earliest student in photography, Niepce, to produce on the same plate, by one impression of the solar rays, all the colors of the chromatic scale. Of this process, called by the discoverer heliochromy,—sun-coloring,—we have had the opportunity of seeing specimens.

They are three copies of colored engravings,—a female dancer and two male figures in fancy costumes; and every color of the original pictures is faithfully impressed on the prepared silver tablet. The preparation of the plates remains a secret with the inventor, but the plate when prepared presents a dark brown or nearly a black surface, and the image is eaten out in colors. We have endeavored by close examination to ascertain something of the laws producing this remarkable effect; but it is not easy at present to perceive the relations between the colorific action of light and the associated chemical influence.

The female figure has a red silk dress, with purple trimming and white lace. The flesh tints, the red, the purple, and the white are well preserved in the copy. One of the male figures is remarkable for the delicacy of its delineation: here, blue, red, white, and pink are perfectly impressed. The third picture is injured in some parts; but it is, from the number of colors which it contains, the most remarkable of all. Red, blue, yellow, green, and white are distinctly marked, and the intensity of the yellow is very striking. Such are the facts as they have been examined by the *Athenæum*, and these results are superior to those which were given to the world when photography was first announced.

So much for the early experiments in this line. Coming down to the present day we find in *Le Moniteur* that at the meeting of the "Syndicat Général de la Photographie," May 9th of the present year (1890), M. E. Vallot exhibited a good photograph in natural colors, printed from a colored picture on glass. The method is thus described: Thick photographic paper is floated for three minutes upon

Water	100 parts.
Chloride of Sodium	20 parts.

and dried quickly. Sensitizing is done by floating the dried sheet for five minutes on

Water	100 parts.
Nitrate of Silver	10 parts.

It is then well drained and washed for ten minutes in running water. In order to remove the last traces of the nitrate, the paper is now placed for five minutes in

Water	100 parts.
Chloride of Sodium	20 parts.

and washed for a few moments. The next step is to form the violet modification of chloride of silver. This is accomplished by exposing the paper to the action of light in a bath containing 500 parts of water and 20 parts of the following bath:

Distilled Water	100 parts.
Protochloride of Tin	3 parts.
Sulphuric Acid	10 drops.

The paper is exposed until it assumes a deep violet color; it is then washed for five minutes and dried. After drying it is washed for five minutes in a solution containing equal parts of the following:

A—Water	100 parts.
Bichromate of Potash	5 parts.
B—Saturated solution of sulphate of copper.	

When dry, the paper is ready for exposing. The exposure to full sunlight under a colored painting on glass is not less than three-quarters of an hour. The colors are plainly visible after the exposure, but have a fogged appearance. The print is cleared and the colors made more brilliant by treatment with

Water	100 parts.
Sulphuric Acid	20 parts.

The prints must not be left too long in the bath, which at first improves the colors, but afterward destroys them. After a thorough washing, the prints are given a coating of albumen or gelatine to increase the brilliancy of the colors. Nothing is said about the use of hypo or the permanency of the prints, and we give the process for what it may be worth until we have had an opportunity of trying it.

THE PERFECT ANIMAL PHOTOGRAPH.—First and foremost it should have had sufficient exposure to bring out all possible detail in the hair or feathers, and in the shadows, detail being necessary in this branch of photography almost more than in any other. It follows, then, that the perfect photograph, though taken in soft sunlight (which should be avoided if possible), should not be an instantaneous one, but should have had a fair exposure. This means hours of watching and waiting, when a snap-shot might be obtained in a few moments, but, as I hope to show you, the resulting negative is very different. One is of little or no use; the other may be of use to naturalists and artists for all time.

The perfect animal photograph, then, should be free from heavy shadows, full of life, yet unstrained, natural in position and expressions—*all four legs and the tail* should show distinctly, and the mane (if any), nostrils, ears, eyes, and *hairs round them* should be microscopically sharp.—GAMVIER BOLTON, F. Z. S., before Photographic Convention, Chester, Eng., 1890.

TONING BATHS.

THE following are formulæ for all the principal toning baths, and each is given in the form of a stock solution which may be diluted for use by adding ½ ounce, or 12 c.cm., to 8 ozs. or 200 c.cm. of water, unless otherwise directed.

1.—ACETATE BATH.

Chloride of Gold	15 grns. or	1 grm.
Acetate of Soda	480 "	28 "
Dist. Water to make	7½ ozs.	200 c.cm.

2.—BICARBONATE AND ACETATE BATH.

Chloride of Gold	15 grns. or	1 grm.
Bicarbonate of Soda	30 "	2 "
Acetate of Soda	360 "	21 "
Dist. Water to make	7½ ozs.	200 c.cm.

3.—MAWSON'S COMPOUND BATH.

Borax	330 grns. or	19 grm.
Acetate of Soda	180 "	10 "
Bicarbonate of Soda	90 "	5 "
Dist. Water to make	20 ozs.	500 c.cm.

TONING BATH.

Stock Solution	10 drms. or	30 c.cm.
Chloride of Gold	1 grn.	.06 grms.
Dist. Water to make	10 ozs.	250 c.cm.

Mix two hours before using.

4.—ACETATE AND CHLORIDE BATH.

Chloride of Gold	15 grns. or	1 grm.
Acetate of Soda	360 "	21 "
Chloride of Lime	135 "	8 "
Common Chalk	360 "	21 "
Dist. Water to make	7½ ozs.	200 c.cm.

5.—ACETATE AND BORAX BATH.

Chloride of Gold	15 grns. or	1 grm.
Acetate of Soda	150 "	10 "
Borax	15 "	1 "
Dist. Water to make	7½ ozs.	200 c.cm.

6.—BORAX BATH.

Chloride of Gold	15 grns. or	1 grm.
Borax	900 "	56 "
Dist. Water to make	7½ ozs.	200 c.cm.

7.—BICARBONATE BATH.

Chloride of Gold	15 grns. or	1 grm.
Bicarbonate of Soda	450 "	30 "
Dist. Water to make	7½ ozs.	200 c.cm.

8.—PHOSPHATE BATH.

Chloride of Gold	15 grns. or	1 grm.
Phosphate of Soda	450 "	30 "
Dist. Water to make	7½ ozs.	200 c.cm

9.—Tungstate Bath.

Chloride of Gold	15 grns. or	1 grm.
Tungstate of Soda	450 "	30 "
Dist. Water to make	7½ ozs.	200 c.cm.

10.—Chloride of Lime Bath.

Chloride of Gold	15 grns. or	1 grm.
Common Chalk	150 "	10 "
Chloride of Lime	30 "	2 "
Dist. Water to make	7½ ozs.	200 c.cm.

11.—Platinum Toning Bath (Stieglitz).

Chloro-Platinite of Potash	30 grns. or	2 grms.
Oxalate of Potash	480 "	27 "
Phosphate of Potash	240 "	13 "
Dist. Water	10 ozs.	250 c.cm.

12.—Platinum Toning Bath (Clark).

Chloro-Platinite of Potash	15 grns.	1 grm.
Nitric Acid	1 or 2 drops.	
Distilled Water	30 ounces.	

13.—Uranium Bath.

Uranium Nitrate	1 grn. or	.06 grms.
Chloride of Gold	1 "	.06 "
Bicarbonate of Soda	20 "	1.3 "
Dist. Water to make	10 ozs.	250 c.cm.

14.—Uranium Bath.

Chloride of Gold	1 grn. or	.06 grms.
Uranium Nitrate	1 "	.06 "
Chloride of Sodium (salt)	20 "	1.3 "
Acetate of Sodium	20 "	1.3 "
Distilled Water	10 ozs.	250 c.cm.

15.—Sulphocyanide Bath.

Chloride of Gold	15 grns. or	1 grm.
Sulphocyanide of Ammonium	180 "	6 "
Phosphate of Sodium	225 "	15 "
Hyposulphite of Sodium	4 ozs.	120 "
Dist. Water	20 "	500 c.cm.

In making and using the above baths there are one or two points worth noting. First of all the solid chloride of gold should be dissolved in a little of the water and sufficient chalk added to the same to neutralize any acidity; this liquid should be allowed to settle and the clear solution poured off. All solid salts should be added to the water, and when dissolved the solution of gold, neutralized as described, should be added last. The following baths should be kept twelve or twenty-four hours before being used, viz., 1, 2, 4, 5, 6, 15; and 3, 7, 8, 9, 10 should be kept for an hour or two; and 11, 12, 13 and 14 used immediately. With regard to the tones given by these baths we have already said something on this point, but for the convenience of those who want a particular bath to obtain a particular tone, the following may be of assistance: Brown tones are usually obtained by using 1, 3, 5, 6, 7; purple tones by 2, 4, 8, 9, 10, and 15; black, by 11, 12, 13 and 14.

In connection with this subject there is one fault which is worth noting, and that is *loss of tone in fixing*. This is sometimes extremely annoying, and the cause of it sometimes seems more remote than at first sight appears. By some it is said to be due to a compound of copper formed from the alloy of the metal used; by others that this fault is due solely to the use of strong gold baths, which attack the surface of the pictures only, without sufficiently toning the whole of the image. This, however, is rather a chemical than a practical subject, and we have treated elsewhere of the chemistry of the toning bath. The remedies suggested are the addition of alkaline gold solution to the fixing bath as in the following formula:

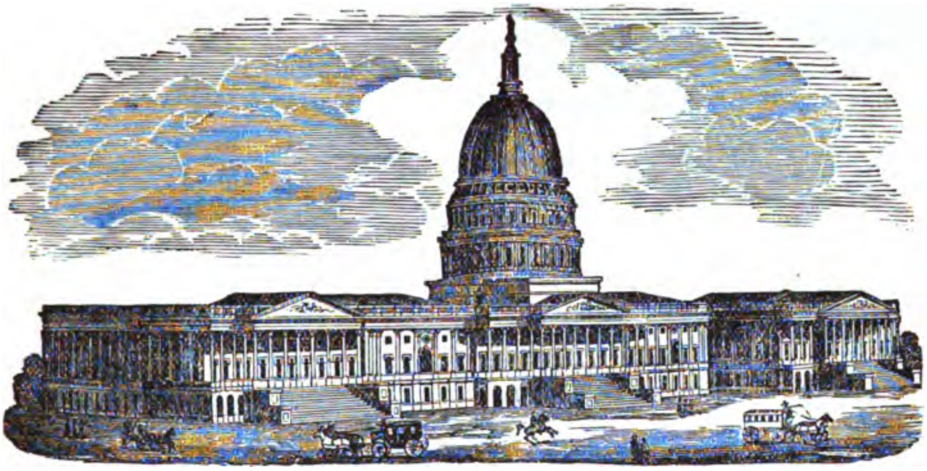
Chloride of Gold	1 grn. or	.06 grms.
Carbonate of Soda	150 "	10 "
Hypo	4 ozs.	120 "
Water	20 "	500 c.cm.

Mix the gold and soda with a little water, and add to the hypo dissolved in the remainder of the water, and this will be found of great service. Another fault which is connected with toning is that of yellowness of the whites. This is often seen when the toning bath is too alkaline, and appears to be due to some secondary decomposition or combination.—*Photographic Answers.*

CHROMO-PHOTOGRAPHY.

THE statement is again made in the public press that photography in natural colors is an established fact. This time the report emanates from New York, and states that Mr. E. Bierstadt is the fortunate discoverer. He vouches the information that his object is attained by means of four negatives, representing the red, blue, and yellow colors, and a neutral tint, each negative being made to represent its proper color only. If we understand this announcement correctly, this is not photography in natural colors by any means, but merely a process of impressions in printers' or lithographic inks from orthochromatic photo-gelatine plates, a comparatively old process, which is commercially worked in its different phases in Germany, noteworthy being the patented process of Wezel and Nauman of Leipzig, who lately exhibited a beautiful specimen of their process provided from zinc plates in eighteen different tints, all of the plates being produced from one negative. The color blocks are produced on zinc plates coated with a special sensitive preparation, the time of exposure and development regulating the color to be printed from the block; viz: for the light tints a long exposure and weak development is necessary. With normal exposure and development the contour plates are obtained, while for the heavy dark colors a short exposure and strong development is required. As many colors as are wanted so many different zinc plates are requisite, after which the plates are etched with phosphoric acid, and such portions as are not wanted are routed out, leaving the zinc block same as a lithographic stone. All this, however, is not photography in natural colors, but merely chromo-lithography in an advanced form. It will not be photography until the colors are produced by the light reflected from the particular colors in the subject. J. F. S.

FOR blocking out statuary for lantern slides, take mastic or copal varnish, with which has been well mixed up some lampblack, until when spread upon glass it is quite opaque; if too thick, thin with a little turpentine.—*The Optical Lantern Journal.*



THE CONVENTION AT WASHINGTON.

The Photographers' Association of America will hold its annual convention at the Smithsonian Institute, Washington, August 12th to 15th inclusive. The grand prize is offered for the best print from a negative suggested by Tennyson's "Enoch Arden." During the convention week the memorial to Daguerre will be unveiled.

Following is the list of wards, and hotel and railroad rates.

The list of awards for 1890 is as follows:

The Grand Prize will be a group in bronze, entitled "Nearing the Goal," value $225, governed by the following rules and regulations:

Competitors for this award shall exhibit three plain photographs, illustrating Tennyson's poem of "Enoch Arden," the pictures not to be less than 13 or more than 22 inches in length.

The pictures must be framed, either with or without glass. The award to be made for the most meritorious collection.

Class A.—A beautiful silver "plaque," mounted in plush, representing "Victory," for the best exhibit of genre photographs.

Competitors for this class shall exhibit six photographs. The subjects are to be chosen by the photographer and appropriately inscribed. Size not less than 13 or more than 22 inches in length, and framed with or without glass. The award to be made for the best collection.

Class B.—One gold, one silver, and one bronze medal for the best collection of portrait photography, size 14x17 inches, or larger.

Class C.—One gold, one silver, and one bronze medal for the best collection of portrait photography, size 11x14 inches, or smaller.

Class D.—One gold, one silver, and one bronze medal for the best collection of landscape photographs. One silver and one bronze medal for the best collection of marine views. One silver and one bronze medal for the best collection of architectural views.

Class E.—One silver and one bronze medal for the six most artistically retouched negatives, any size; prints made before and after retouching to be exhibited with the negatives.

Class F.—One silver and one bronze medal for the six best plain enlargements, either in silver, bromide, albumen, carbon, or platinum, size not less than 18x22 inches.

Class G.—One silver medal for the best improvement in photographic appliances introduced since the last convention.

Class H.—One gold, one silver, and one bronze medal for the best foreign exhibits of portrait photography, framed or unframed, but delivered to the Association free from all charges.

Exhibits in this class will be admitted to the United States free, by sending the same directed to the Secretary of the Photographers' Association of America, Washington, D. C.

Applications for space must be made to George H. Hastings, 147 Tremont St., Boston, Mass., who will forward blanks for entries and all needful information.

The headquarters of the Executive Committee will be at the Ebbitt House, rates $2.50 to $3.00 per day. The Arlington, Riggs, and Willard's, $3 per day. The National and Metropolitan, $2.50 per day. The St. James (European plan), $1 per day for rooms.

All the R. R. Traffic Associations make the rate of a fare and one-third, certificate plan, your local agent furnishing the certificate. By paying full fare going, you are entitled to one-third fare returning, if your certificate has been signed by our R. R. Committee, W. V. Ranger.

N. B.—See that your certificate is signed by yourself and local agent, before starting.

We shall be most happy to see you all at Washington, August 12.

Fraternally yours,
J. M. APPLETON,
President P. A. of A.

THE following is said to be a reliable eikonogen developer, giving a density equal to pyro, and will keep well for a long time in two solutions:

No. 1.

Sulphite of soda	6 ozs.
Hot water	60 "
Eikonogen	1 oz.

Shake the bottle well to make the eikonogen dissolve.

No. 2.

Carbonate of potash	4 ozs.
Water	22 "

To develop normally exposed plate: Add to 4 ozs. of No. 1, 1 drachm of No. 2; after the image has begun to appear, add from 1 to 3 ozs. of No. 2 to give density The negative gets so dense that you have to hold it up to the window of the dark-room lantern to see what is in it; then immerse in hypo bath, after which it will not be too dense. The same is also very good for bromide paper.

AMATEUR EXPERIENCES.—V.—"A PHOTOGRAPHIC DUDE."

EDITOR AMERICAN JOURNAL PHOTOGRAPHY:

I HAVE a new experience to report, and, varied as my photographic kaleidoscope has been, all previous trials were thrown into the shade by my late adventure. It came about in this way: I started out for an afternoon's trip through the Great Chester Valley, in the vicinity of Valley Forge, for a chance shot at some of the historic landmarks with which the locality abounds. So, getting off the train on the Pennsylvania Railroad at Devon, I started north on the macadamized road which leads into the valley. Well, I had trudged along about a mile, oufit and tripod in hand, and beads of perspiration on my brow, when coming to a turn in the road where bursts into view the magnificent stretch of farmland known as the "Great Valley," while feasting my eyes on the beautiful panorama below, I was awakened from my reverie by the trample of a horse's foot. Stepping to one side I saw a spanking turnout: one of these vehicles where the footman sits with his back to the driver—the latter reigned up, and with a drawl inquired the road to the house of a Mr.—well, I will say Barclay, a well-known Quaker farmer in the valley. I directed him, and he went on without so much as a "thank you." He had not driven but a few rods when a turn in the road brought into view an old disused limekiln, so frequently met with in the valley. It was a picturesque bit; the driver stopped, and said a few words to his flunky in the rear, who respectfully saluted and dismounted; the driver followed. I also stopped to see what was coming. The smaller of the two men, of medium height, seemingly about twenty-five years of age, faultlessly dressed in silk pongee coat, russet shoes, silk shirt, and light pants, with a bright crimson silk sash around his waist, turned to his companion—footman, lackey, or servant, call him what you will, who rejoiced in a full livery from cockade on his hat down to his boots—and, pointing to the old limekiln, said with a drawl: "Jeems!" "Yes s'r." "Set up." "Yes s'r." Every "Yes s'r" being followed by respectfully raising his hand to the rim of his hat. Well, what was my surprise when I saw the footman bring out from under the carriage seat a photographic outfit, all of English make; first came the mahogany tripod, silver tipped; next the camera, also silver-mounted; then the battery of lenses. After the proper one was selected by the master, the latter simply pointed to the limekiln. The footman answered with a respectful salute, took off his hat, and stuck his head under the silk velvet focusing cloth; after moving the camera several times, when at last a satisfactory view was obtained on the ground-glass, he turned to the master, and with a salute said, "Sharp, sir?" The former, who had so far stood listless by, now put his head under the velvet: — "Jeems"—"Yes, s'r"—"Expose"—"Yes s'r." So the servant put in the plateholder, adjusted the stop, and deferentially handed the bulb to the master, and drew the slide; then, touching his hat, said, "All ready, sir," when the other simply pressed the bulb: the photograph was taken, and the servant returned the slide, took out his pencil, touching his hat to signify that he was ready; the master drawled out, "Ruins of old fort from the revolution." During all this time I stood aghast, wondering if I was awake or asleep. I moved a little closer. I looked and wondered, and, being endowed with considerable assurance, I resolved to introduce myself to the exquisite amateur, although I did not feel that the bond of sympathy was great between us. I greeted him with, "Taking photographs, mister?" The reply I got was to excuse him, but really "he didn't recollect ever having the honor of an introduction." This was accompanied by a look of *ennui* and contempt. I felt my insignificance; McAllister's 400 at once came into my mind, but I drew a deep breath to keep up courage. So I told him that I was a member of the Leopardville Camera Club, and also took photographs, and if I could be of any service to him, being acquainted in the locality, I would be glad to offer my services if desired. Well, the answer came with a drawl: "Jeems," —"Yes s'r"—"Tell that fellow to go about his business."—"Yes s'r." Then the flunky, with a wave of his hand, pointed down the road and said "Be off." Well, to say I was mad is no name for it. All the Fourth of July in my constitution boiled within me. My first impulse was to resent the insult; however, an idea flashed through my mind. The dude and his flunky were going to Friend Barclay's, and I determined to play a joke on the dude, and give him a lesson; so, jumping into the field, I took a short cut to find Barclay's. The latter is an old Friend, one of the sixth generation, to occupy the old farm, and known for his sterling honesty and simplicity; his ancestors, notwithstanding their religious principles, had been among the first to don the blue and buff, and serve under the gallant Perry and impetuous Wayne. After greetings were over, I informed Friend Barclay that I had good reason to believe that his peaceful home was about to be invaded by a pair of photographers from town, for what purpose I did not know, but it would be as well to be on guard for fear that they were in the interest of one of those rose-colored New York illustrated papers of questionable morality; further, as there are so many wolves roaming around in sheep's clothing, to impose upon the unsuspecting farmers in the valley under one pretext or another, I thought it was no more than right to post him about the visitors.

The notification had its effect, as the sequel will show. Scarcely had I finished when I saw the handsome drag turn into the lane. So I went back of the house to await results. Well, they came. After dismounting, the master took a card from his case, handing it to his footman—"Jeems." "Yes s'r,"—with his drawl said, "Take my card to that fellow on the porch, and tell him Mr. Algernon de Percy Smythe wishes to take a photograph of his house, also of the room occupied by My Lord Cornwallis during the Revolution; also, if he has any relics about the house to arrange them in this room." Well, Jeems delivered the message. Friend Barclay never changed a muscle. His face was as serene as a summer sunset. Stepping down from the porch, he said to the master, "Friend, what does thee want?" The request was repeated. "Well, friend, is thee not presuming a great deal? I do not want any pictures taken of this house." The exquisite now ventured an explanation, viz., that lately an organization had been formed in Philadelphia, known as "*The Sons of the Loyal Gentlemen of the British Provinces*" the object of this society being to preserve the names and history of such gentlemen as had remained loyal to the Crown of England during the Revolution; also to mark by lasting memorials such houses as were occupied by British officers during the struggle, and the intention was also to mark such places, as soon as funds were obtained, where loyal valor had gained signal victories over the rebel hordes under Washington. Friend Barclay was a good listener, but he had no time for an anglo-maniac. During the conversation the demure "Jeems" had set up the camera. So turning to the speaker, he said, "Friend, suppose I came to thy house on Arch or Broad street, with a box and sticks like thine"—— "Excuse me, sah," broke in the visitor, "I reside on St. George's Place, south of Market street, if you please." "Well, friend," continued the Quaker, "What would thee do if I was to intrude myself on thee?" "Ah, my dear sir," was the reply, "the case is entirely different; you are only a common farmer man; I am a gentle"— He got no further. Barclay's patience was exhausted. He called, "Patrick,—Patrick" (this was his hired man, who had been also taking in the whole show). The latter stepped out with alacrity, bringing his hand up *a la* "Jeems." Friend Barclay continued, "Patrick, thee will eject these two persons, peacefully if possible, but forcibly if necessay—and do it quickly." "Throw 'em out in the road, is it, sur?" queried the farm-hand; "bedad, I can do the same." It would be hard to say who was the more surprised, the master or the man. The scene formed a group seldom met with. The nonplussed representative of the S. of the L. G. of the B. P., with his English flunkey; the calm, serene face of Friend Barclay; the willing Irishman; and last of all, the solitary member of the Leopardville Camera Club, with a smile on his face as broad as that of the discomfited dude was long,—all tended to make up the picturesque group. Patrick was the first to break the spell. Turning to the flunky he said, "Jeems, me bye, git;" and the flunky, picking up his outfit, lost no time in reaching the lane. The master by this time had regained his speech, and turning to Friend Barclay, said, "Fellow, do you know that I am Mister Algernon de Percy Smythe, and that you have insulted a gentleman, and I shall have satisfaction." Patrick, turning to him with a twinkle in his eye, answered, "Well, Mr. Algernon de Percy Smythe, do yees want to take any satisfaction with yees? if ye do, why I will give ye all ye want--right now"—following up his words with an unmistakable action of his clenched hands. Smythe lost no time in backing towards the gate, and jumping into his drag, started out of the lane. What he said was lost through the clatter of the horse's feet on the dusty lane.

Friend Barclay, as serene as ever, said not a word about the occurrence, but merely turned to me and invited me to walk in and stay to supper, an invitation which I readily accepted. Should this letter come to the notice of the Honorable Algernon de Percy Smythe, I hope that he may derive a lesson from his humiliation and the joke set up on him, remembering the moral, "Never to look down upon a brother amateur because he belongs to a country club."

J. FOCUS SNAPPSCHOTTE.

IT appears as if photography is going to push its way in every direction. We hear from Berlin that at the suggestion of Professor Dr. Leyden, Dr. Brettner, of Berlin, has made experiments in fixing the facial expression of sick people by means of photographs. He fixed his camera in the wards, and protected the persons whom he photographed by means of screens from the gaze of others. For those who were only slightly indisposed or convalescent the occurrence provided somewhat of a diversion, and others, who were very ill, seemed indifferent to the process. Facial expression is another field for the amateur, and we could suggest many subjects, without dealing with the sick and afflicted.—*Photography.*

PHOTOGRAPHS AS EXTRA ILLUSTRATIONS.

IT is frequently the case that the owner of a fine work on travels, etc., who desires the most effective illustration and result, furnishes to the binder unmounted photographs for insertion, and it is highly requisite that the latter should be possessed of advanced information as to the best methods of doing the work, so that it shall not present wrinkles, but shall be flat and even to the eye.

Some suggestions were given in an English journal, *The Bookbinder*, not long since, that may be observed to advantage:

A silver-print photograph should never be placed on a very white mount, because the high lights of the print are never pure white, and a bright white margin round the print spoils its beauty by killing its delicate half-tones. Lay the reprint on paper of various tones, and select the tint that harmonizes with it best. Next, pay attention to the mixture you use to fasten it; let us call this the mountant. This cannot be too pure. If you use starch, which is employed, we believe, more than any other paste, make it fresh every day, and in this way: Take a teaspoonful of best starch in a large cup, add just enough cold water to break it up, but don't put in more than is quite necessary; pour boiling water on it, stirring the while, until it is quite transparent; when cold it may be used. Or, if you wish to use paste, take a teaspoonful of corn flour, beat this well up in a teacupful of water till it is quite smooth and there are no lumps; place this in a porridge saucepan (that is, a double one), and let it boil, stirring it continually; it will turn to a delightfully thin and transparent paste, that will be easy to work with and very adhesive. Gelatine dissolved in water—say a half ounce to a teacupful—is also a very good mountant. It must be of the best quality, and ought to be used hot.

Now for the difficult part of mounting. We will give three methods:

(1) After trimming the print all around, moisten it slightly (the object being to have it limp without stretching it) by placing it between sheets of damp paper over night, and it will be about right next morning. Damp the mount, also slightly paste your print very carefully all over (using no more paste than is quite necessary), lay it carefully on the mount, cover it with a piece of clean paper, and rub it down well, and then place it in the standing press, between pieces of blotting-paper, and allow it to dry under pressure. It may be perhaps necessary to take it out of the press, and change the blotting-paper. If this be done properly, the photograph and its mount will lie quite flat.

(2) Another plan is to paste the back of the print all over, and allow it to dry; damp the mount, lay the print on the damp mount, and pass them through the rolling machine, or place them in the standing press under strong pressure.

(3) Take a piece of lithographic stone, or a thick piece of glass; glue this all over with gelatine, place the photographic print quickly down on the glued stone, rubbing it smartly all over; then pick it up and lay it down on the mount. All these actions must be rapid, and if done properly by this method a photograph may be easily mounted even on thin paper without cockling.

There are other methods, but with any one of these a binder may easily, cleanly and properly mount a print on any size, the chief object being to get the print on to the board or mount before it has any time to stretch. As a final warning, see that the mounts are not boards made from wood-pulp.

. DEVELOPERS FOR LANTERN SLIDES.

JAMES Shirley Hodson, F.R.S.L., in the *Camera* gives four separate formulæ for lantern slides. From these the amateur can take his choice; either one should give clear whites. In our own practice, however, we still incline to the ferrous oxalate as giving the best results. A modification of the compound developer of eikonogen and hydrochinone, as given elsewhere in this JOURNAL, however, may prove to be the ideal developer for lantern slides and transparencies. We expect to make some experiments with the French formulæ in the near future, the results of which we will lose no time in laying before our readers.

PYROGALLIC DEVELOPER.

A.—Pyrogallic acid	40 grs.
Pure sodium sulphite	16 "
Citric acid	5 "
Water to make	10 oz.
B.—Liq. am. fort	40 minims.
Pot. bromide	40 grs.
Water to make	10 oz.

Equal parts of the two solutions to be mixed at the time of using.

FERROUS OXALATE DEVELOPMENT.

The saturated solutions of potassic oxalate and iron sulphate may be used in the proportion of three or four parts of the former to one of the latter, with the addition of one grain of potass. bromide to each ounce of developer, adding more bromide and increasing the amount of exposure when warmer tones are required.

To keep the iron solution from oxidising, one drop of sulphuric acid should be added to each ounce of water before dissolving the salt.

The ferrous oxalate gives a blacker colored image than pyrogallic developer.

HYDROKINONE DEVELOPER.

A.—Hydrokinone	40 grs.
Sod. sulphite	120 "
Pot. bromide	5 "
Critic acid	5 "
Water to	10 oz.
B.—Potass. hydrate	80 grs
Water to	10 oz.

Equal parts of each. Several plates can be developed in the same solution.

EIKONOGEN DEVELOPER.

A small proportion of bromide must be used to ensure absolute clearness in the unexposed parts.

A.—Sodium sulphite	400 grs.
Potass. bromide	5 "
Eikonogen	100 "
Water to make up to	10 ounces.
B.—Sod. carb.	320 grs.
Water to make up to	10 ounces.

Equal parts of each to be mixed together at time of using.

Developing lantern plates is an easy matter to any one who may be tolerably expert at the development of ordinary negatives, because the mode of procedure is almost identical. Develop until the detail of the picture has appeared, and is just at the commencement of the stage when the brilliancy of the detail is becoming obscured; then remove the plate from the developing dish, wash in clean water, and place it in the fixing solution (hypo-sulphite of soda, four ounces to one pint of water) until the image is thoroughly cleared. Before treating the plate to the alum bath, again wash, and after having submitted it for a short time to the hardening process caused by the alum, let the plate have a good soaking in several changes of water to remove all traces of the hypo. Some persons urgently recommend that in using the pyro developer the alum bath should precede the fixing; and in order to avoid stains in the unexposed parts of the plate, to the fixing bath should be added one part of bi-sulphite of soda to five parts of hypo. Should stains appear, however, through sluggishness in developing, they may be removed by dipping the plate for a few seconds in the following solution:

Hydrochloric acid	½ oz.
Strong solution of perchloride of iron	¼ oz.
Water	20 oz.

and then place the plate in a fresh hypo bath. When intensification seems to be needed, the ordinary mercury formula may be adopted with advantage.

THE COMPOUND EIKO-HYDROQUINONE DEVELOPER.

AT the last meeting of the Parisian Photographic Club an interesting discussion was indulged in, respecting the merits and advantages of the new developer composed of hydroquinone and eikonogen. Attention was called to the fact that many formulas had of late been published lauding the praises of the compound developer. Each special publisher claiming that the mixed developer was far superior to either of the two separately, as it acted as energetic as eikonogen, without the danger of fogging the shadows, and at the same time showing the characteristic density of hydroquinone. Those statements were confirmed by several members present who had tried the compound developer.

Following formula was recommended as giving the best results.

Sulphite soda	100 g.
Eikonogen	15 g.
Hydroquinone	5 g.
Dissolve in hot water	1 litre.
After the solution has cooled off add carbonate potash	50 g.

Attention was called to the fact that much depended upon the temperature of the developer. In this direction several interesting and useful experiments were made. A number of exposures were made on one object under exceptionally favorable conditions, a perfect negative resulted from 6 sec. exposure, temperature of developer at 20° C., with temperature at 30° C. same results were obtained with exposure of 4 sec. Contrary, when developer was reduced to 10° C. the same subject required an exposure of from 12 to 24 seconds to obtain the required density.

A CAUTION TO PHOTOGRAPHERS.

AS quite a number of photographers who attend the Convention in Washington have expressed a desire to take a trip to England and the Continent after the Convention has adjourned, for the express purpose of extending their photographic knowledge, and to become thoroughly familiar with the latest European methods, we consider it our duty to the craft to sound a note of warning to all such as contemplate an extension of their trip to Germany. As will be known to many, a systematic effort has been made ever since the termination of the Franco-Prussian war to expunge from the German language all words, expressions and terms of foreign origin. How thoroughly this has been done will be apparent when we take for example the German substitutes for the two universal words telegraph and telephone,—viz.: *Electrischerfernschreiber* (Electric distant writer), *Fernsprecher* (distant-speaker). For some reason still unexplained, photography and its attendant terms escaped for the time being. It is now stated, on apparently good authority, that one of the first edicts issued after the resignation of Prince Bismarck, was an order relative to the expurgation of all foreign words which crept into the German language in connection with photography. The result of this is, that the tourist who visits Berlin, and looks for the formerly familiar signs "*Photographisches Atelier*" looks in vain. Nor would the uninitiated stranger be much the wiser if he gaped for an hour at the brand new sign over the entrance to one of Berlin's most celebrated galleries :

FRIEDRICH WILHELM RECHTECHTTEUTSCH,
H. u. K. Hof.-Lichtbildner,
LICHTBILDNERWERKSTATT.

If his curiosity should overcome him, and he should enter the establishment, he would be surprised to find himself in an everyday photograph gallery. But even after entering the portal with the sign *Eingangsstube*, and being met with a polite reception from the *Empfangsfraulein*, he would not be less confounded, if he should point to a cabinet size and ask the price, and be told that *silberpauslichtbilder* in *schlafstubengrösse* cost so much, but in *damenzurückziezimmergrösse* the price is so many marks higher. All this confusion is merely the result of the improvement in the German language. If the seeker after photographic knowledge would have a personal interview with the proprietor, he would send his card to the *Herr Hauptlichtbildner*, or if his business laid with the operator he would simply ask for the *Dunkelkammersachverständigen*. The much abused amateur is known no more within the Imperial realm, he has vanished forever. His successor is the *Herr Liebhaberlichtbildner*,—a just punishment for his many shortcomings.

For the benefit of such members of the Eleventh Convention as propose a trip through Germany, we will give a few of the new German substitutes for our familiar terms: viz., skylight, *glasshaus;* printing-frame, *abklatschrahmen;* printer, *lichtpauser;*

retoucher, *bildverschönerer;* burnisher, *heissglanzvorrichtung;* carte, *besuchsbrustkarte;* transparency, *durchsichtsbild;* mount, *pappe;* negative, *gegenbild;* albumen paper, *eiweisspapier;* positive, *lichtpause;* photography, *lichtbildnerei;* photographer, *lichtbildner;* tripod, *stativ;* printing, *lichtpausverfahren;* silver printing, *silberpausverfahren;* blue print, *eisenpausverfahren;* orthochromatic, *farbenempfindlich;* leimtype, *leimlinienhochdruck;* photogravure, *lichtgalvonotondruck*, etc. Before passing this subject another word of caution: should any one of our photographic friends at any time be in a German dark-room, and have the misfortune to be out of reach of the lid of his dry-plate box, and wish his brother *Dunkelkammersachverständiger* to hand it to him, let him be sure to ask for "*dendeckeldesbromsilberleimsubzdrockenplattenkästen*," if he wishes to be understood.

It is stated that in view of these changes in the nomenclature, there has been a marked falling off in the photographic industry; further, that since the introduction of these synonyms, there has been a steady increase of the population of the various lunatic asylums throughout the Fatherland from photographers who tried to comply with the Imperial edict. One fatal case is also announced, that of a German photographer, who returned to Berlin after a long sojourn in the Congo basin, and who knew nothing of the expurgation during his absence. It is stated on the day of his arrival he stepped up to a newstand and asked for a copy of the *Photographische Wochenblatt.* The attendant told him she was sorry not to be able to serve him, but perhaps he meant *Das Lichtbildnerische Wochenblatt*, which was the leading *Zeitschrift für Lichtbildnerei*, handing him at the same time a copy of Dr. Mieth's well-known publication, resplendent with its Germanized title.

The old German gave one gasp and expired. J. F. S.

PICKED PHOTOGRAPHIC PEAS.—It is unnecessary for us to state that the following circular emanates from Boston, and was issued by an ingenious photographer to increase his business:

PICKED PEAS!

PERSEVERENCE PRODUCES PROSPERITY.

Patriotic people, particular persons, prudent purchasers, philanthropic patrons, pretty pinks of perfection, patient pedagogues, pert pupils, peacemakers and philosophers, please provide plethoric purses, protruding prodigiously, protecting plenteous pay, pickled purposely to propitiate the photographer.

Proceed to promenade in the public procession, proudly, promptly and perseveringly pressing, and persistently pushing, in promiscuous parties and precise pairs, for the praiseworthy purpose of procuring perfect photographic pictures patiently produced and properly prepared at the picture place, by a practised photographer, perpetually performing parts particularly pertaining to photography.

Present placid, pleasing physiognomies for permanent photographers to put prominently in parlors, to prove precious portraits of past progenitors, possessed and prized by proud posterity.—*Photo. Review.*

THE USE OF THE SCREEN WITH ISOCHROMATIC PLATES.

THE yellow screen was first suggested for use with ordinary plates by Sir William Crookes, when editor of the *Photographic News* many years ago, and on the introduction of isco or orthochromatic plates, the screen was used to so lower the intensity of the actinic rays as to lower the action of the same on the plate. In landscape photography, the yellow screen is at once a valuable ally, which may be used in certain cases, and which, however, may equally as well become a hindrance for truthful results if improperly used. The effect of a screen may be well seen by looking through a piece of ordinary pale yellow tinted glass at a street view in London, not on a foggy day, but on a dull misty day, as I write this, seated at my desk I can command a vista of a London street, and half way down at a distance of two hundred yards is a large public house, further down, at another two hundred yards is an advertising board, on which are some huge blue and white enamelled signs—which I always use on a clear day for focussing my lenses, and testing the same, well, at the present moment that board is invisible, and no one who did not know it, would presume for one moment to say what it was, yet if I take up one of my screens and look through it, I can see distinctly those signs as though it was absolutely clear, and this is exactly how it acts with the lens and plate. When the blue mist hangs over a landscape too much, then I use my screen, but, on a clear day I discard it altogether as unnecessary, because its use then would destroy the charm of atmosphere and distance.

For portraiture I never use it, unless I am working in a very bright light, and my sitters are "clothed in samite, mystic, wonderful," and wonderfully white, then the detail I can get in white drapery is astonishing, and such a thing as a hard and chalky print I never get.

For copying oil paintings I *never* omit the use of the screen, and for this work I have three of different degrees of shades, which are square in shape, mounted in velvet lined brass frames, which are made to slide one inside the other, and thus I am enabled to obtain almost any depth I may require. The effect of the yellow screen is extraordinary when copying oil paintings or colored objects, it cuts off all brush marks, cracks and canvas reflections, and gives beautifully soft negatives, the prints from which are a pleasure to look at. One or two of my artist friends have been so much struck with the copies of some old masters which I possess done in this way, that they have been induced to take up photography solely for copying pictures.

I have often heard it said, and often seen it written, that a yellow screen gives an iso or orthochromatic effect with an ordinary plate, my opinion of a man who says this is that he is not a fool, but a deliberate fibber, if not worse. No one who has ever tried this once would ever make the statement. And I most emphatically deny that a yellow screen has any effect on an ordinary plate, except to make the negative worse than it would otherwise be,

Now a few words as to the screen—in the first place, don't go and get a bit of ordinary yellow window glass, and think you have got a screen, because you haven't. A screen to be of any use must be optically worked of absolutely plane and parallel faces. I always obtain my screens in sheet from a London dealer, and cut them up to size to suit my lenses, they are thus much cheaper, a 3-inch square costing about three and sixpence. To test a screen, I hold it an angle of about 45° some little distance from a window, and note whether the cross bars of the window are duplicated or not, they most likely will be, or at least you should so adjust the screen till they are. I then turn the screen round and note whether the duplicate images cross from right to left or *vice versa*, if they do I reject the screen, because then the faces are not parallel. Another method which I use when I am in doubt is to focus some fine line drawing, with the lens at full aperture, and sufficiently near so as to obtain rather a large reproduction on the focussing screen, the image is obtained critically sharp by means of my little focussing magnifier, and circle of clear glass in the centre of the screen, then the yellow screen is inserted in position, and the image is again examined, and if not as sharp as before, the screen is rejected. It is quite possible to make screens of collodion and gelatine stained with aurantia, but I have quite rejected these as unfit for anything more than experimental work, on account of their fragility and tenderness.

The position of the screen is not an important point, before, behind or between the lens combinations is a matter of perfect indifference, provided the screen is optically perfect. It has been suggested that one of the components of a doublet should be coated with collodion, stained with aurantia, and this I tried, and did not bless the man who proposed it, as some of the collodion crept under the lens mounting, and caused a tree-like marking in the canada balsam separating the two lenses.

There is also one branch of photography in which a screen is absolutely indispensable, and that is cloud photography. I consider that it is utterly impossible to obtain truthful cloud studies except by using a yellow screen, and orthochromatic plates. But I must defer this subject till another month, or the editorial equilibrium will be upset at the length of my paper.—*Photographic Answers.* F. C. S.

A NEW METHOD OF INTENSIFICATION.

R. S. LIESEGANG, in *Photographisches Archiv*, No. 649, publishes a novel process for intensifying weak negatives, in which the actual film is not affected or changed in the least, consequently there is no danger whatever of destroying the negative, as too often happens. The process is as follows: The negative is first varnished in the usual way, then it is again coated with collodion or varnish, in which has been dissolved red or green aniline coloring matter which is sensitive in light. The negative is now exposed to the direct light so that the rays strike through the negative; the latter bleaches out on the clear places, while on the half tones and shadows it remains unaltered or graded according to the depth of the shadows, consequently intensifying the darker parts of the negative in the correct proportion of the density. Unfortunately, aniline colors having these properties are not permanent, so that with the use of such negatives the intensification gradually fades. The process can then be repeated.

Dr. Liesegang further says, that perhaps some of the iron salts such as are used in the blue-print process, might be substituted for the aniline colors. This, however, would call for a redevelopment of the negative, but would give permanent results.

S.

SENSITIZING CANVAS FOR ENLARGEMENTS.—The simplest method of making enlargements on canvas is by collodion transfers, but the following will be found a good method of sensitizing canvas: The canvas must be first carefully washed with dilute ammonia and water, to remove greasiness, and then with a little distilled water. Brush over it the following solution:

Gelatine	100 grs.
Potassium bromide	200 "
Water	10 ozs.

When dried, float on a 30-grains solution of silver nitrate; expose when fairly dry, and develop with

Pyrogallic acid	2 grs.
Citric acid	1 "
Water	1 oz.

Fix in hypo—

Coating the canvas with gelatino-bromide emulsion is very easy, but it is very liable to peel off, and soon goes stale. The following is very excellent, and the prepared canvas can be kept for months before applying the silver:

Iodide of potassium	80 grs.
Bromide of ammonium	35 "
Chloride of ammonium	10 "
Gelatine	60 "
Albumen	1 oz.
Distilled water	10 "

Mix, and gently warm until the gelatine is dissolved; clean the surface of the canvas (if it be prepared for painting in oil) with ammonia ½ oz., methylated spirit 2 oz.; apply with a soft cloth until the greasiness has disappeared, and allow to dry thoroughly; then apply the above solution evenly with a clean sponge, and when dry sensitize with

Silver nitrate	1 oz.
Glacial acetic acid	½ "
Distilled water	12 "

Pour a small pool of this in the middle of the canvas, and spread all over with a ball of cotton wool, and in about one minute, and whilst still wet, expose—about one minute is enough for an enlargement of six times—and develop with

Gallic acid	60 grs.
Acetate of lead	10 "
Distilled water	10 oz.

Filter and apply in the same manner as the silver solution, and then with the *same* piece of cotton wool (then throw it among the residues), for the little silver it contains will give vigor; when this is completed, rinse, and fix in hypo 4 to the pint of water, and wash; the fixing and the wash after can be accomplished by allowing the canvas on its stretcher to float face down, and the canvas need not be detached from its stretcher at all by the use of this process, and the image *will not* strip under any circumstances. A modification of development is, after the paper is sensitized, to *directly* apply the developer, and allow it to soak for a minute. Then place the canvas in position, and expose; the development will then proceed with the exposure, and can be watched by the aid of a lighted thin taper, and, when all the details are out, you may strengthen with a little fresh developer. No loss from incorrect exposure by this method.—*Photography.*

GENERAL NOTES.

ORTHOSKIAGRAPHIC PHOTOGRAPHY.—"Die Photographie mit Brom Silber Gelatine," by Ludwig David and Charles Scolik, of Vienna, Wilhelm Knapp-Halle, A. S., Part I., Vol. II., has just been issued from the press, and will prove a work of the greatest importance to the photographic student, as it will be a standard of reference to the professional and advanced amateur, and being the joint work of two of the most celebrated photographers of Vienna, representing both the professional and amateur branches, the facts are given from both standpoints. For practical information, the work is exceeded by none and equalled by but few of the numerous editors of the photographic press.

Part I. Orthoskiagraphische photographic deals exhaustively with the different modes of obtaining the true color values. Comparative plates are given, which must remove all doubt from the mind of the reader as to the superiority of the orthochromatic plates. We expect in our next issue to reproduce some of Brother Scolik's experiments and results.

Part II. deals with failures such as we meet with every day; it gives their cause, also the remedy.

Part III. is a collection of valuable recipes and formulæ, with which we also expect to acquaint our readers in a subsequent issue.

The frontispiece a heliogravure of Her R. H. Marie Theresa, Grand Duchess of Austria; the negative is by Charles Scolik, the mechanical work by the Imperial Institute of Austria. We congratulate Messrs. David and Scolik on the success of their undertaking. Subscriptions for the complete work may be sent to the publication office of the AMERICAN JOURNAL.

WE are in receipt of the third edition of Captain Pizzegehelli's work Anleitung Zur Photographie für Aufänger. The work is strictly what it claims to be on the title, viz: A Guidance into Photography for Beginners. It is well written and profusely illustrated with 101 engravings, and well deserves the popularity with which it has been received. We recommend it to any of our readers who can read German and wish to obtain an insight into our art. It is published by Wilhelm Knapp-Halle.

THE INTERNATIONAL ANNUAL FOR 1890, E. and H. T. Anthony & Co., New York. —This popular annual has been received. The editors have surpassed their previous efforts in collecting the series of articles interspersed with numerous illustrations. The work does credit to the publisher, and we recommend it to the notice of all of our readers, professional as well as amateur.

THE illustrated supplement to *Photography* for June 26, 1890, gives us the portraits of Prof. C. H. Bothamley, President; Mr. J. J. Briginshaw, Hon. Sec'y; Mr. F. Evans, Local Hon. Sec'y, and last but not least, Mr. Andrew Pringle, the retiring president. These portraits will form a valuable acquisition to our sanctum. Articles from the pen of both the retiring and present presidents have appeared on the pages of the AMERICAN JOURNAL, and are well known names to photographic students throughout the world.

RESTORING FADED PRINTS.—H. Landaurek, of Teschen, received a medal from the Photographic Society of Vienna for a process of reproducing and restoring albumen prints that have faded. His baths are:

No. 1.

Tungstate of soda	100 grams, or 3½ oz.
Distilled water	5000 c. centim., or 175 oz.

No. 2.

Carbonate of lime (C.P.)	4 grams, or 62 grs.
Chloride of lime	1 gram, or 15½ grs.
Chloride of gold and sodium	4 grams, or 62 grs.
Distilled water	400 c. centim., or 14 ozs.

Solution No. 2 is made in a yellow glass bottle, well stoppered, and allowed to stand for twenty-four hours before use. It is then filtered into another bottle of yellow glass, and, to preserve it, well corked. To use it, say for a sheet of albumenized paper, take 150 centimeters (5¼ ounces) of No. 1 to from 4 to 8 centimeters (1 to 2 drachms) of No. 2. The prints, well washed, are placed one at a time in this bath. The strengthening must not be too rapid, ten minutes being sufficient in summer, and the bath must not contain an excess of chloride of gold. Properly used a beautiful clear purple color is obtained. To fix the prints take 150 centimeters (5¼ ounces) of solution No. 1 to 15 centimeters (4 drachms) of hyposulphite of soda. The strengthened prints are well washed, placed in this bath one at a time, and soaked until the yellow color is entirely gone, which requires in some cases from three to five hours, when they are thoroughly washed.

PICTURES OF THE LIGHTNING.—William N. Jennings showed at the Franklin Institute recently several photographs of lightning taken during a violent storm. Mr. Jennings has been photographing lightning for more than eight years, and does not believe in such a thing as zig-zag lightning. His pictures appear to bear him out in his belief. He has photographed vertical, horizontal, and rotary flashes. In all the photographs the flashes showed, instead of a sharp zig-zag, an almost perfect wave line. The best photograph was one of a horizontal flash. This piece of work, he says, was a streak of luck, and it was the flash that preceded the most violent thunder clap of the storm. Running from the main flash of light were dark flashes, which Mr. Jennings does not pretend to understand. The cause of the dark lines was discussed by members of the institute, and several opinions were given.

SOME excellent advice is given by a recent writer on the production of artistic effects by judicious lighting in photography. He says that if photography seeks to follow in the footsteps of art it should free itself from the limitations of lighting in portraiture imposed by the narrow confines of skylights and reflecting screens. Were more study given to simplicity in lighting, the more successful would be the average portrait. "This is exactly the study of the painter—simplicity in his methods. Why does the amateur often beat the professional? Because he is backed with more artistic judgment, and freed from the conventions of the skylight, works with greater simplicity. What has made the success of some of the best of our photographers? What has led Sarony nowadays to discard backgrounds and bric-a-brac altogether? Nothing but this."

AUTOMATIC PHOTOGRAPHY.—Apropos of the new automatic photographic machines, a rather good story is going about, says the editor of the *British Journal of Photography.* An elderly lady of the sternest " British matron " type, who has heard of the wonderful new " process," happened to come across one of the already common " penny-in-the-slot " machines that supply photographs of celebrities at our railway stations. Placing her penny in the proper receptacle, and following the instructions given, she artistically posed herself, and after a due interval opened the drawer and drew out the photograph of a famous burlesque actress in full (?) dress. We have not yet heard the grand finale.

AN ITALIAN TONING BATH.—Print deeply, and immerse, *without washing,* into the following bath, which may be used at once, and will keep fairly well:

Hypo	240 grs.
Sulphocyanide of ammonium	50 "
Acetate of soda	15 "
Chloride of gold	2 "
Water	3 ozs.

Prints will first turn a sickly yellow, but will gradually assume a brown tone, then purple, and finally, warm black. Rinse and give five minutes in a five per cent. solution of alum, then wash well as usual. As may be seen, the above tones and fixes at the same time.

PROFESSIONAL ENTERPRISE IN ENGLAND.—A curious sight was witnessed one day last week in the Old Christ Church Road, Bournemouth. A photographer, residing at Lansdowne, advertised in a local paper that on certain days (of which the day in question was one) he would photograph all babies brought to his studio free of charge. The result of this decidedly novel offer must have astonished the photographer himself. From early in the morning until late in the day babies arrived in large numbers, and there was quite a procession of perambulators and bassinettes. The photographer's studio rapidly filled, and the street outside was a perfect baby show. There were babies in arms, babies on wheels, fat babies, thin babies, and babies with heads as smooth as a billiard ball The guardians of these precious mites, notwithstanding the long time they had to wait, appeared in perfect good humor, and waited their turn with quite philosophic patience. The scene was decidedly a grotesque one, and was at the same time as curious as it was amusing and instructive.—*Photography.*

THE *Photographic Instructor,* for the professional and amateur, by W. I. Lincoln Adams and Professor Charles Erhman, Scovill & Adams Co., N. Y., has been received. It is No. 26 of the Scovill Photographic Series. It has been found necessary to issue a second edition of this valuable work. In the twenty-four chapters composing the book the amateur can find all the information he is likely to want on any photographic topic. It is profusely illustrated, and printed on good paper with plain type. The name on the title page of our editorial brother of the *Times* is in itself a sufficient guarantee for the practical worth of the contents. Price, one dollar. Orders may be sent to 1030 Arch Street, Philadelphia.

SENSITIZED PLATES DEVELOPED IN WATER.—Dr. Backelandt gives the following formula for making sensitive plates which, after exposure in the camera, can be developed in water. These gelatino-bromide or gelatino-chloride of silver plates are prepared in the following manner: The back of the plate is coated with a mixture composed of:

Water	20 c.c.
Salicylic Acid	1 gramme.
Gum or Dextrine	10 grammes.
Alcohol	5 c.c.
Pyrogallic Acid	1 gramme.

The plate is allowed to dry at the ordinary temperature. To develop, steep it in water to which a few drops of ammonia have been added.—*Wilson's Photo. Magazine.*

MR. E. J. WALL announces the invention of a new printing out process by which prints can be obtained fully printed out by ordinary gaslight in some three-quarters of an hour's time. If all that he says turns out to be correct, and if the results are as satisfactorily as well as certainly produced as those by the methods of to-day, the new process will prove a boon, not only to amateurs who have only time to work at night, but to the professional whose output is at present limited by the amount of actinic light old Sol elects to favor him with. We await further particulars of the process with interest.

INTENSIFICATION.—Pin-holes in negatives intensified with bichloride of mercury and ammonia can be to a great extent avoided by using the following precautions: Filter your saturated mercury solution. Keep rocking the dish whilst allowing it to deposit on the negative. Wash well. Use distilled water with the ammonia. I believe this to be most important. If you add ammonia to ordinary water you will frequently notice the appearance of a large number of minute particles of some chemical substance, and I fancy these settle on the film and cause pin-holes. To render intensification a pleasure, avoiding markings, etc., acidify your mercury solution, say ½ oz. of sulphuric acid to 20 ozs. of the mercury solution. This neutralizes any trace of hypo left in the film, and the result is a clean, bright negative, in place of a dirty, stained, uneven-printing one. If you do not require too much intensification, try the following method: After well washing (and before fixing, which you can always do in ordinary actinic light, although you will find a good many benighted photographers are afraid to try it), put the negative in the sunlight, and let it remain there for a few hours. Then fix as usual. You will find it has increased wonderfully in density. Don't forget to wash developer off thoroughly, say for two or three minutes under tap.—*B. Davidson, in Amateur (London) Photographer.*

CENSUS TAKER—Good morning, madam; I'm taking the census. Old Lady—The what? Census Taker—The c-e-n-s-u-s! Old Lady—For lan's sake! what with tramps takin' everythin' they kin lay their hans' on, young folks takin' fotygrafs of ye without so much as askin', an' impudent fellows comin' round as wants ter take yer senses, pretty soon there won't be nothin' left ter take, I'm thinking.

WE call the attention of our readers to the following notice from our valued exchange, the *Amsterdam Tijdschrift.* "De tocht van de leden is bepaald op Zondag 22 Juni. Een flinke stoomboot is gehuurd, ten einde een bezoek aan de Vecht te brengen. Nadere bijzonderheden zullen aan de leden bijtijds medegedeeld worden." The occasion was without doubt an enjoyable one, and we regret our inability to have been present with our friends of the Vereeniging "Helios."

CARVING THE FILM.—Every retoucher uses the pencil; few use the knife as much as they might do. A really fine bladed penknife, with the blade ground to a very fine point, and two or three dissecting needles—ordinary needles mounted in wooden handles and ground to a chisel point will do,—make an outfit that every retoucher ought to have handy. When you have begun to use them, you will be surprised to find how often they prove a real help.

WATERPROOF GLUE FOR WOODEN DISHES.—Soak ½ pound of best glue in cold water until quite soft, melt in glue kettle. When quite dissolved, pour in one ounce of hot saturated solution of bichromate of potash, and stir well. It is now ready for use; apply with a brush. Put the article so treated to dry in full daylight for a day or two, and then apply strong alum solution. The vessel is now ready for use, but must be washed first.

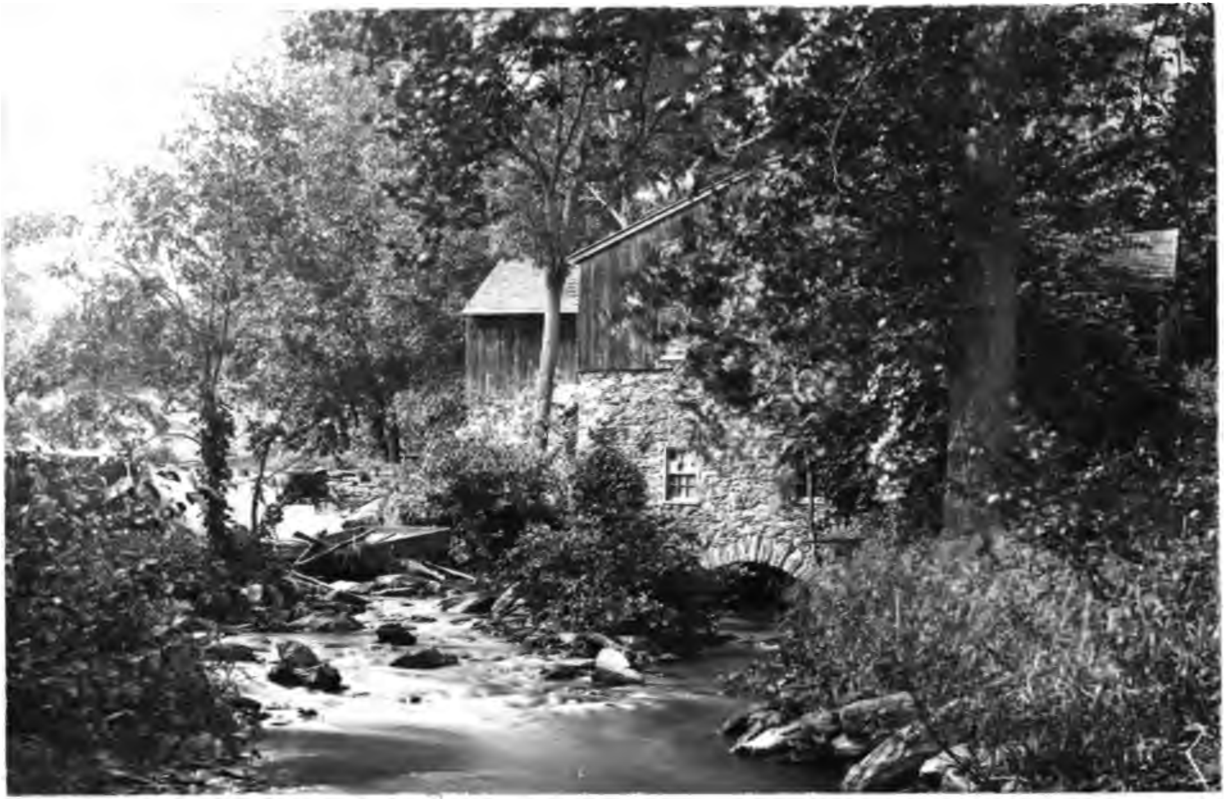
FILLING HOLES IN NEGATIVES.—For insensitive spots, torn film, and similar places where the negative from any cause is not transparent and ought not to be, the following remedy will be found useful: Rub down a little fine black-lead (dry) until it is perfectly smooth, work up to a suitable consistency with a thin gum, and apply with a sable point. For re-touching large work this will be found a very useful adjunct to the pencil.

SPOTTING.—Let your India ink be of the best quality. Rub it up to the desired tone with neutral tint, in oil of spike, on a ground-glass slab. Use no water. Use a fine camel-hair "pencil," No. 2 or 3, dipping it in a bottle of the oil of spike, to dilute the color as required in working. You can then burnish the prints as much as you like without any fear that the spotting will "lift."

TO CLEAN THE BACKS OF PLATES.—Scrape off the largest spots and streaks of gelatine with a knife; then clean the rest of the plate with dry powdered pumice or cuttle, rubbed on with the hand. It removes the gelatine rapidly and polishes the glass at the same time.

MRS. LANGTRY'S silver bathtub is not such a novelty as many seem to think it. Every photographer has his silver bath —*Chicago Times.*

PHOTOGRAPHER to young lady about to have her portrait taken: "Now, I'm not going to tell you to look pleasant; you couldn't look anything else!"



AN OLD MILL ON THE "CRUM," PENNSYLVANIA.

NEGATIVE BY J. F. SACHSE. PRINTED BY T. H. MCCOLLIN & CO.

AMERICAN ACADEMY
SEP 8 1890
OF ARTS AND SCIENCES

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AMERICAN
JOURNAL OF PHOTOGRAPHY.

Published by THOS. H. McCOLLIN & CO.

VOL. XI. PHILADELPHIA, SEPTEMBER, 1890. No. 9

THOS. H. McCOLLIN, Managing Editor. J. F. SACHSE, Associate Editor.

TRUE COLOR VALUES IN PHOTOGRAPHY.*

OF all the important advances during the present time, within the scope of the photographic field, no discovery is of greater epochal importance than the process which enables us to produce photographic pictures whose shadings reproduce in entirety the true color values of the colored original. From the first it was always charged that the greatest shortcoming of photography, in contrast to its general fidelity and truthfulness to the original, was that the picture was not alone lacking the animating charm of its natural coloring, but was often reproduced in shadings which were not in true relation with the real color values of the different pigments in the original. For instance, certain dark colors, such as ultramarine blue, cobalt blue, and violet, were reproduced much lighter than they appear in reality to the human eye; while certain light colors, chrome yellow, orange, several shades of red, etc., were reproduced much darker.

The result of this condition was that in all cases where the beauty of the subject consisted in the harmonic color graduations, photography fell far short of the requirements.

To overcome this apparent shortcoming of photography, the aim has been of all photographic experts to find some medium which would excite the sensitiveness of the photographic plate, for the heretofore latent chemical rays, to so great an extent that the latter would produce an action which would cause their impression on the sensitized plate in its true color value. In these researches the first aim was to discover why the sensitive chemicals then used in photography were not equally sensitive for all rays.

As far back as 1870 Schultz-Sellack, spurred on by the generally accepted theory which had been current for the previous twenty years, "that only such rays exert chemical action on a body which are absorbed by that body," followed this course of research, and found that only such rays act upon salts of silver which are sufficiently absorbed by such salts.

Shortly afterwards Dr. H. W. Vogel stated, as the result of spectral-analytic experiments, that the light-sensitive property of the photographic plates did not alone depend upon the color-absorbing properties of the sensitive silver-salts alone, but that the color-absorbing properties of added substances also played an important part; and further, that consequently we were enabled to sensitize bromide of silver for any desired color at will, or, in other words, to increase the sensitiveness of the plates for certain colors by adding a substance which absorbed the certain color, and thus increase the chemical reduction of the silver bromide.

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* A free translation from Messrs. David and Scolik's "Orthoskiagraphische Photographie." Band II. Wilhelm Knapp, Halle A. S., with additional notes by the translator.

These desirable sensitizing mediums were found in certain coloring matter, which was added to the light-sensitive preparations. In this manner photographic plates were produced which, when the active rays (blue and violet) were reduced by absorption in a transparent yellow medium, such as a color-screen, showed an increased sensibility for the usually dormant light rays.

This discovery was really the result of an accident. Vogel, during one of his spectrographic experiments, found that one sort of English collodion dry plates, which were tinted with yellow to prevent solarization, gave certain colors of the spectrum truer than the ordinary collodion plate. Through this accidental discovery Vogel was induced to try various coloring matter, among which corallin proved the most useful. The first successful experiment in this line dates back to the year 1873, at which time Vogel succeeded in photographing yellow lighter than dark blue or violet. He obtained this result with bromide of silver plates dyed with corallin, used in connection with a yellow color-screen.

The experiment was made on an object having a yellow ground crossed by a broad blue band. First an iodide of silver collodion plate was tried; the result, a white band on a black ground. With a bromide of silver (corallinized) no image was obtained; but the same plate used with the addition of a yellow color-screen between lens and plate, which absorbed the blue rays and transmitted the yellow without reduction, resulted in a negative which produced prints showing a dark band upon a light ground.

Further experiments, however, soon established the fact that all coloring matter by no means contained the properties requisite to sensitize the photographic plate for the absorbed rays. It was further found that a number of such mediums as increased this absorbtion of rays at the same time weakened the sensibility of the emulsion for rays of other shades.

The most useful of these coloring mediums were found among the coal-tar products, especially cyanin. In 1874 Becquerel came to the front with his claims for chlorophyl; while five years later Mr. Fred. E. Ives, of Philadelphia, published in the *Philadelphia Photographer*, December, 1879, the results of his experiments in obtaining true photographic color values. This was the first published process of photographing all colors correctly. His efforts at first did not attract the interest they deserved, even ridicule and opprobrium being heaped upon him by certain European parties. All this, however, did not cause him to cease his researches, and in 1884 he published his paper, "Isochromatic Plates by Means of Chlorophyl," in the *Photographic News* (London, Sept., 1884).*

In this line of research especial credit is due V. Schuman, of Leipzig, for his spectral-analytic experiments, and later also to Abney, Attout, Clayton, Carey-Lea, and Dr. J. M. Eder, who published the results of their experiments.

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* In 1886 the Committee on Science and the Arts of the Franklin Institute [Philadelphia] made an investigation of Ives' claim to first practical success in correct color-tone photography, indorsed his claim, and awarded him the "John Scott Legacy Medal" for the discovery and publication of his process.—*Journal of the Franklin Institute*, October, 1886.

Shortly afterwards numerous experiments were made by Dr. F. Mallmann and Ch. Scolik, in the photo-chemical experimental laboratory, for the purpose of establishing the practical uses of the published results and deductions of the above-named investigators. It was by these practical tests that Scolik called attention to the advantages of erythrosin, and which resulted in the almost universal adoption of erythrosin as a color-sensitizing medium.

The next step was to combine the orthochromatic principle with the preparation of the emulsion. Clayton and Tailfer produced gelatine dry plates stained with eosin-ammonia, patented the process, and put the plates on the market. This was followed shortly afterward by Dr. Vogel, who brought out a plate of his own under the name of the "Azalin Plate," which showed a much greater sensibility for orange-yellow than the eosin-ammonia plate. The orthochromatic medium azalin proved to be merely a combination of chinalin-red with cyanin. Dr. J. M. Eder also furnished a color-correct plate at this time, of which eosin was the medium.

When the possibilities of a combination of the orthochromatic principle with the gelatine dry-plate process became generally known, two different methods presented themselves to incorporate the sensitizing coloring matter with the dry-plate emulsion. The first was that of simply immersing the ordinary dry plate for a minute or two in the color solution. The other method was to add the color solution to the fluid emulsion before coating the plates.

For practical reasons, and convenience of the operator, the first process was soon superseded by the latter, as it was found that the ready-prepared plates were more permanent,—*i.e.*, in orthochromatic properties,—and hence came into general use.

Exhaustive experiments made in Europe, however, have demonstrated that the highest orthochromatic perfection can only be attained with the immersed or soaked plate.[*]

Another great advantage in favor of the latter is the fact that any photographer of average intelligence can at will transform, as the occasion requires, any make of dry plate which he is in the habit of using into an orthochromatic plate of the first quality; the only drawback to this process being that it is not safe to prepare any large number in advance, as the keeping properties are limited. Plates of this kind are especially suited to landscape work. Although the advantages of color-correct plates have thus far received but little recognition by amateurs in this country for general work, the time is near at hand when all photographers who aim at perfection will avail themselves of this medium for reproducing their pictures in the relative correct shades of true color values.

For the benefit of our professional readers we here give the formulæ which in practice have proved to be the best and simplest methods for those who wish to prepare their own plates.

Any of the makes of gelatine dry plates in general use, which work clear and are not of too great rapidity, are suitable for sensitizing by the immersion process.[†]

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[*] Scolik, p. 260.

[†] David and Scolik, p. 277. [As a matter of fact different makes of plates are affected differently by the same staining bath; This unfortunate condition can only be overcome by experiment with the special make of plate

Practice has proven beyond any doubt that colors of the eosin group are the most practicable, as in most cases it is of greater importance to have a plate of greater sensitiveness to yellow and orange than one which shows only sensibility to orange and red, such as are treated with cyanin, *and which requires the greatest caution in the various manipulations. Further, only in extreme cases would the demand call for a clear sensibility for red.

Of the above-named group of colors, erythrosin blue has given the best results. The total and orthographic sensitiveness which can be obtained on an ordinary dry plate treated with an ammoniated erythrosin bath is often extraordinary, as the sensibility for yellow becomes so great that with such plates portraits have been successfully taken by petroleum and gas light.

Another curious fact is that this staining process enhances the reliability and equality of the plates, there developing exceedingly clear in the shadows, with less inclination to fog than the ordinary dry plate. Further, the action of the ammonia which is added to the formulæ increases the sensibility of the plate so greatly that the immersed plates not alone regain the sensitiveness which they would otherwise lose by the addition of color, but the general rapidity is greatly increased from what it was before the color treatment, a fact which must not be overlooked by experimenter.†

Strange to say, where the ammoniated color solution is added to the emulsion before the plates are coated, there is no increase in the rapidity of the plates.

The formulæ which proved of great value in the extended experimental investigations of Scolik and his confreres were the the following, viz.:

First carefully dust off the plates with a soft camel's-hair brush to prevent any foreign matter from getting into the bath or spotting the plate.

I.—ACCELERATOR.‖

Water, distil.	200 cc.m.
Ammonia	2 cc.m.

Immerse the plate in this solution for two minutes, then drain until they cease to drip, and immerse from 60 to 75 seconds in

II.—COLOR BATH.

Erythrosin solution	25 cc.m.
(1 Erythrosin pure: 1000 water.)	
Ammonia	4 cc.m.
Water, distil.	175 cc.m.

Above solution should suffice for at least a dozen plates [size not given. Ed.]. It is advisable, however, after the seventh or eighth plate has been stained, to add 1 cc.m. of ammonia. During the operation the pan should be kept carefully covered, and rocked both ways to insure an equalizing action. After the plates are taken out of the

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used. The color bath which will work with one, will not work to the same extent of color sensitiveness with others. This difference in the color-absorbing properties of the plate is due to the fact whether the sensitiveness of the emulsion with which the plate is coated was gotten by ammonia or by boiling,—a fact of which the average purchaser of dry plates is entirely in ignorance]. Ed.

[*] In special cases cyanin is indispensable.—Ed.

[†] It is a question whether this is true of all makes of commercial plates. Statements have been made that on some plates a simple water solution of the coloring matter produces the same effect.—Ed.

[‖] Bothomly, whose experiments were all made with English dry plates, claims that his experiments showed no advantage whatever of the use of the accelerating solution.—Ed.

color bath they should be placed on a rack to dry, in a totally dark room of ordinary temperature, and should be fit for use in about three hours. It is requisite that great care be taken with the light during the whole process,—using only a very dark ruby lamp, and working as much as possible in the dark, away from the light.

Above formulæ may be modified by substituting in the same proportions eosin (blue) and Bengal red in place of erythrosin, as the subject may require.

Still greater orthochromatic action than by above formulæ can be obtained by the use of an erythrosin-silver-ammonia solution. This is best prepared in following proportions at night by weak candle light:

Erythrosin solution (1.1000) . . . . 50 cc.m.

Heat on water bath to 45° C. add to this, drop by drop, a solution of

Nitrate of silver 1.10,

until no further precipitation takes place, and the fluid appears colorless ; then filter and wash the residum with distilled water until the latter shows no reaction with muriatic acid, *i.e.*, does not become turbid or milky; then take

Ammonia . . . . 2–4 cc.m.
Water . . . . 20 cc.m.

and pour repeatedly over the precipitate in the filter until thoroughly dissolved. The solution thus obtained is diluted with 200–300 cc.m. water, in which the plates may be soaked sixty seconds. Before immersing the plate it is well to place in a bath of water. to which a few drops of ammonia have been added.

Before closing this paper, the writer wishes to add a word of caution to photographers who wish to prepare their own color-sensitive plates. Do not attempt it in extremely hot weather, as the gelatine on the plate is apt to soften and run, thus ruining the plates.

JULIUS F. SACHSE.

SUCCESS IN PORTRAITS—FURTHER HINTS.

IN the previous number of this journal I gave some general advice about the artistic management of heads in photographic portraiture, and it has occurred to me, since writing what I did upon the subject, that some further help might be offered in regard to what may be the best mode of procedure in the manipulatory details.

It will, of course, be taken as granted that only dry-plate work is referred to, as there is, probably, very little wet-plate work done now, either by professionals or amateurs. In the first place, I hold it of the utmost importance that extremely rapid plates should be used. I know that many workers feel timid about using extremely sensitive plates, but I have never fully understood why such feeling should exist. With proper care about excluding actinic light from the dark room, and cleanliness in the manipulation, a good make of the most sensitive dry plates will invariably yield good results,—in my own experience, better than can be got by the use of plates of less sensitiveness. Beginners generally set great value upon extreme density and contrast in their negatives, which is a mistaken idea. They will find, when they have gained more experience, that what they at first thought rather feeble work will in the end prove the most desirable; and as what is technically called thinness is one of the prevailing objections to rapid plates, this at least should not stand in the way of their use.

In portrait work it is especially desirable that the time of exposure of the plate should be as brief as possible. The majority of people, when they are sitting for their likenesses, cannot divest themselves of the consciousness of the situation, and in their efforts to preserve a calm equanimity they attain a diversity of expression that is frequently destructive of a happy likeness. In the effort to overcome the disadvantages of a long sitting, we frequently see the sitter posed in entirely too strong a light, either placed very close to a window in an apartment, or subjected to the glare of a "sky-light," and, strange as it may seem, such strong, unsubdued treatment can never result in anything but a harsh, unrefined work. In order, therefore, that we may attain a desirable softness of the contrasts of the lights and shadows, and an undrawn look of the sitter, it is necessary that our light should be considerably diffused and softened before it strikes the head and face. I must here say that it is for this reason that I set so much stress upon a high light in my previous article. It will be obvious that if we increase the height of the light in an apartment we must increase the distance of the sitter from it, in order that it may fall at a proper angle upon him, to make a good picture, and consequently it will be very much more softened than if he were seated close to a low light, and, of course, as we soften our light we subdue it, and a longer exposure is rendered necessary; and if we use the most rapid plates that we can get, we gain the great advantage of posing our sitter in a quiet, subdued light, where the eyes may be calmly opened, breadth and softness attained, and at the same time not protract our sitting over the time that would be necessary with a slower plate in a harsh light.

At this point it will not be out of place to make some reference to the use of the head-rest, an invariable accessory of the sky-light, and an implement held in awe as almost analogous to the head-rest of a dentist's chair by many nervous people, but I must say an indispensable for continuous good portrait work. Much as has been and is said against this very useful contrivance, I would advise its use generally. Occasionally it may happen that a very successful picture is taken without one, but this is too much a matter of chance to be relied upon for constant practice. The beauty of a photograph is so much enhanced by a considerable amount of sharpness, that in addition to very careful focussing the steadying of the head is of great importance. It is not only as a safeguard against sidewise swaying motion that the rest is of advantage, but the sitter may, without being aware of it, move a little nearer to or further away from the camera during the interval between focussing and making the exposure, which throws the whole out of focus, and makes a blurred and unsuccessful picture. And furthermore, we often curtail an exposure, fearing a movement of the sitter, when we would have allowed more time and made better work had the head been steadied properly. In using a head-rest, however, let me enjoin that it be adjusted to the head,—not the head to the rest. Arrange the pose, lighting, and all with due care first, then at the last moment bring forward the rest, properly adjusted, and simply steady the head with it.

All those who are sufficiently interested in the art to care to do careful work will before long find themselves using a developer of their own, a modification of some of the standard ones given, and they will also attach themselves to a brand of plates which will insure them best success. It is proper that this should be so, because by constant flitting from one to another of the many plates and developers offered, that certainty of procedure and of results to be obtained can never be arrived at which is to bring forth work of the highest excellence.

Do not be carried away by the idea that rapid plates are only for snap-shutter work. In taking portraits with them count your time of exposure by seconds, and not by portions of seconds. An under-exposed plate is absolutely worthless, while a rather fully exposed one is easily restrained in development, and a fine picture may sometimes be got by after-intensification when the plate is too thin from over-exposure. Try to have your developer as nearly as possible of the proper strength, but if you can, let it be on the side of being too weak rather than too strong. Proceed slowly, and do not cut the development short, the only clear places, if there are any, should be in the points of most intense shadow.

It should be the emulation of all who feel a true interest in photography to produce some fine heads. A truly fine photographic portrait is indeed an admirable thing to look upon. The human countenance, constituted as it is of a number of features, is a remarkable work of nature. The eyes, nose, and mouth, the principal ones, contain such a variety of outlines and modeling that each is in itself a study. Whenever we go in the least out the usual and commonplace, and enter upon the realms of the beautiful, the intellectual and the picturesque, we have in a fine portrait, to persons of cultivation, and to artists especially, a picture worthy of interesting study, and more or less of admiration. To the masses a portrait, except as a likeness of some one, has no more interest than the card that it is mounted upon. But let anyone have spent a little time in attempting to draw and paint faces,—see with what a different eye he will observe any good photographic head placed before him. He will begin at once to analyze it,—the general shape of the head, the relative proportion of the features to one another, the expression, and the infinite variation of delicate lights and shadows which constitute its surface modeling, will all be carefully observed. What delight he will find in the curves and flowing lines of the hair, the brilliant life-like look of the eyes, the drawing and modeling of the nose, and the various inflections of the mouth. But what do we get of all this in a common, everyday photograph? Little or nothing, we are sorry to say. For the sitter has been placed in a raking, strong top-to-bottom light, falling chiefly upon the edge of the face. Little attention has been paid to securing, by careful exposure and development, the exquisite half-tones which constitute the perfection of the art, and all deficiencies have been sought to be atoned for by an abundant amount of indiscriminate retouching, which has robbed the face of those touchings and marking of character which nature has placed there as belonging to her book of truth.

Let it not be supposed that I would have matters changed as they exist. The work that is turned out from the galleries is precisely what is wanted. It suits the customer, and he is the one who pays for it. My exhortation in behalf of excellence is only for the few who may appreciate a fine work of art, and whom we would put on the road for producing, when opportunity may offer, something that will be of high and lasting credit to the art of photography. XANTHUS SMITH.

LENS CLEANING.—Pure spirits of wine, applied with cotton wool and wiped off with a fine chamois leather, is the best thing for cleaning lenses.

PERMANENT HISTORICAL PHOTOGRAPHS.

BY one of those strange metaphysical coincidences with which we occasionally meet in the literary world, our valued contemporary, the *Photographic News*, of London, No. 1664, published simultaneously with ourselves (August, 1890) a leader looking towards solving the problem of preserving permanently historical photographs. The method proposed by our English contemporary is to secure a transparency between the sheets of glass by means of Canada balsam. We regret to say, we fear the process suggested will not fill the requirements of permanency, judging from our experience of ambrotypes of old and lantern slides, which were so prepared. However, we reproduce the paper for the benefit of our readers, and trust that the subject may continue to attract the attention of the photographic world, until a satisfactory solution is arrived at, both regarding an absolute permanent negative and print, as well as means of preserving them for comparison and study.

The production of small photographs for historical purposes, in such a manner that they are likely to resist the attacks of deteriorating influences for centuries, is a problem which well deserves the attention of the photographic world. Many years ago we gave a considerable amount of attention to the problem, and came to the conclusion that one good method was to cement with heat a collodion transparency between two plates of glass, by means of a resinous substance not likely to crack or otherwise deteriorate with lapse of time. In short, the idea was to preserve the photographic film like a fly in amber, and between two sheets of glass.

The insects found in amber lived ages ago, and most of them belong to now extinct species.

In those early times many an unfortunate insect, while crawling upon a hot day, beneath the shade of certain pine trees, particularly the *Pinites succinifer*, found itself entombed forever in a mass of resin, which had fallen from above as an exudation from the tree. The essential oil in the resin slowly evaporated in course of time, the resin itself hardened correspondingly, and the body of the insect became so protected from the ravages of time, as to be preserved through geological periods.

On this principle we once set to work to make a kind of artificial amber, so far as properties were concerned, that is to say, a transparent, resinous cement, free from volatile oil. A sample of pure and old Canada balsam was taken, and placed for several days in an oven with the door open, to slowly drive off the essential oil without the application of much heat; it was stirred occasionally during the operation. Afterwards a few drops of castor oil were added to the melted balsam, and well stirred in; care was taken not to add too much castor oil, otherwise the mixture would not have become sufficiently hard when cold.

When the proportions—which must be discovered by the system of trial and error—are nicely adjusted, the mixture, when cold, is somewhat tough, and not so brittle as amber.

Castor oil is not a volatile oil, and may almost be classed with the drying oils, for after the lapse of great length of time a thin layer of it will dry into a film.

The mixture just described is virtually a tough resin, practically free from volatile matter.

A plate of iron, with short, firm legs, and some minute gas jets a little below it, was then taken, and some sheets of smooth blotting-paper laid thereon, so that the transparency should not come into direct contact with the hot iron.

The heat was regulated by means of small taps governing the gas flames; too much heat discolored the resinous mixture, and gave the transparencies a yellow tinge. The transparency was laid face upward on the blotting-paper, and when it became sufficiently hot some of the melted prepared balsam was dropped upon it; the warm covering glass was then laid upon the balsam, and the excess of the latter worked out at the edges of the two plates by means of thickly gloved fingers. Air bubbles were troublesome, but with patience could be worked out; this was all the more practicable because plates larger than the lantern slide size were not employed. Uneven glass was troublesome and sometimes useless for the purpose; patent plate or other glass, with a truly plane surface, should alone be used.

The hot-iron arrangement was not a good one for working always at uniform temperature, or for yielding a steady heat. A better plan would be to use a brazed rectangular vessel of copper, filled with olive oil and with gas jets beneath; a thermometor with its stem projecting from the oil bath would serve as a guide to the temperature, and the manipulations should be performed on the upper copper surface of the bath.

The operations already described were performed by us about a quarter of a century ago, in the old collodion days, and the various portraits, heads, and busts only thus preserved were altogether unchanged, so far as memory could be trusted, when we saw them last, upon turning out the contents of an old box a year or two back.

One of the portraits thus preserved was that of Faraday, and it is probably the most life-like and interesting one of him at present in existence; another was a likeness, and not a flattering one, of Professor Tyndall. The two collodion transparencies were originally obtained from two professional photographers, who furnished them to us at the request of Professor Tyndall.

When Mr. York photographed the last of the quaggas, little did he think that he was earning immortality for his name, and causing it to be emblazoned forever in the annals of zoological science, just as would have been the case with another man had that other person been the only one to photograph the last living dodo. Mr. York has five negatives of the quagga, and it is desirable that positives from them should be made as soon and as perfectly as possible, by the most permanent process available, and one yielding abundance of delicate detail. On considering these points, it will be seen that much is to be said in favor of the method just described, and that it is one which deserves the attention of the historian and the antiquarian.

Some microscopic slides cemented with Canada balsam are found to lose their covering glasses by the balsam hardening and allowing the glasses to chip off.

The process of cementing lenses, photographs, and so on by means of Canada balsam and castor oil is as old as the hills, and we are told that the ready-prepared transparent cement can be had in the market. For historical purposes, however, it is essential that the photographer shall conscientiously make the cement himself at the lowest suitable temperature from the best materials, and shall take care that all the volatile oil has been driven off; he must also take care that enough castor oil is employed to guard against an adverse amount of brittleness. The arborescent markings which sometimes appear betweeen cemented lenses are due to a residuum of volatile oil in the cement used, which oil evaporates in course of time after the cementing.—*Photographic* (*London*) *News.*

PHOTOGRAPHY IN COLORS.

CAPTAIN ABNEY thinks there is no scientific basis for belief in the ultimate success of the silver-chloride process of photography in colors, and there appears to be a growing belief that all apparent progress along that line is a delusion. Coincident with the growth of this belief there is a manifest increase of interest in attempts to solve the problem by a composite process. Mr. Ives, of this city, who is recognized as one of the most scientific experimentalists in this line, has just been granted a patent for the method which he proposed about two years ago. It will be seen by the following extracts from his patent specification that he makes a set of negatives which, by their light and shade, represent the effect of the objects on the primary color sensations. The patent office held that this amounted to the application of a new and original principle, and granted Mr. Ives exclusive right to make and use such sets of negatives. By first making such negatives, and then making composite color-prints from them with transparent colors suitably representing the primary color sensations, Mr. Ives expects to accurately reproduce the colors of nature. Such a plan is essentially different from that of the photo-chromic or chromo-collotype processes, in which a single negative only is required, and the combination of colors is regulated by an artist, as in chromo-lithography.

The Bierstadt process, mentioned in our last issue, and of which no specimen has as yet been forthcoming through the channel then mentioned, appears to be a compromise between these two plans,—a process of composite heliochromy, professedly based upon what is known to be a false theory of colors, and its imperfections toned down by the use of a key-plate printed in neutral color. It is quite possible, however, that Mr. Bierstadt has taken advantage of Mr. Ives' publication of his new principle, and does not actually work in accordance with the theory of color which he professes to believe in.

IVES' PATENT SPECIFICATION (EXTRACT).

"My invention consists, first, *in a method of producing a set of photographs of an object or landscape which can be subsequently used for the production of a heliochromic picture;* and, second, in a method of producing a heliochromic picture upon a screen by means of the said photographs, although they are also *adapted to be used in the production of heliochromic pictures by means of pigments.*

"In order that my invention may be understood, it is necessary to explain the modern theory which distinguishes between primary spectrum colors and primary color sensations. According to this theory, which is fully stated in recent text-books on color, there are three primary color sensations,—red, green, and blue,—and only certain narrow and widely-separated portions of the spectrum are capable of producing these strictly primary color sensations. All other parts of the spectrum excite two primary sensations simultaneously, in varying degrees of proportions, and produce compound color sensations, as of orange, yellow, yellow-green, and blue-green. In short, the visible spectrum does not consist of three, or seven, or other limited number of primary colors and mixtures thereof, as taught in older text-books, but of thousands of different primary rays, each of which excites one or more of the three primary color sensations in definite degrees or proportions.

"My plan, based upon the above theory, may be described as follows: Three photographs are to be made from each subject to be reproduced in such a manner that each photograph represents by its light and shade the degree to which light coming from different portions of the subject excites a single primary color sensation in the eye. These three photographs are then to be projected simultaneously upon a screen, each by light which excites only the primary color sensation which it represents, and in such a manner that the three colored images are exactly superimposed and combined to appear as one picture, which should produce exactly the appearance of the object photographed, both as to light, and shade, and color. This involves, first, the production of one photograph by the joint action of the red, orange, yellow, and yellow-green spectrum-rays, but chiefly by the orange, to represent the effect upon the red sensation; another by the joint action of the orange, yellow, yellow-green green, and green-blue rays, but chiefly by the greenish-yellow rays, to represent the effect upon the green sensation; another by the joint action of the blue-green, blue, and violet rays, but chiefly by the blue rays, to represent the effect upon the blue sensation; and, second, the projection of the first photograph by pure red light, the second by pure green light, and the third by blue-violet light. It may be conveniently carried out in practice in the following manner: A negative representing the effect of the illuminated object upon the primary red sensation may be made by exposing in the camera a gelatine bromide-of-silver sensitive plate treated with the dye known as "cyanine," and through a light-filter consisting of a collodion film colored to a sufficient depth with aniline-yellow and chrysoidine-orange. The character of the sensitive plates and shade of the light-filter should be tested by photographing the solar spectrum, the photograph of which should show an intensity-curve substantially like the the curve of a diagram representing the relative power of spectrum rays to excite the primary red sensation.

"A negative representing the effect of the illuminated object upon the primary green sensation may be made by exposing in the camera a gelatine bromide-of-silver sensitive plate which has been treated with a mixture of the dyes eosine or erythrosine and cyanine, and through a yellow light-filter of suitable intensity. The sensitive plates and light-filter for this purpose should also be proved by photographing the spectrum, the negative of which show an intensity-curve substantially like the curve of a diagram representing the relative power of spectrum-rays to excite the primary green sensation.

"A negative representing the effect of the illuminated object upon the primary blue sensation may be made by exposing an ordinary gelatine bromide-of-silver sensitive plate through a double screen of chrysophenine-yellow and aniline-violet in such proportion as will secure in photographs of the solar spectrum intensity curves substantially like the curve of a diagram representing the relative power of spectrum-rays to excite the primary blue sensation. By the introduction of minute quantities of other dyes in making the light-filters the intensity-curves may be slightly modified to more exactly accord with the diagrams representiag the action of the spectrum upon the primary color sensations.

"Claim No. 5. A set of three photographs for the production of composite heliochromy, one produced by the joint action upon a sensitive plate of red, orange, yellow, and yellow-green spectrum-rays, but chiefly by the orange, and least of all by the deep red and the yellow-green; another by the joint action of orange, yellow, yellow-green, green, and green-blue, but chiefly by the yellow-green, and least of all by the orange and the green-blue; and another by the joint action of blue-green, blue and violet, but chiefly by the blue, the spectrum-rays having been made to act upon the plate with an intensity corresponding to their power to excite the primary color sensation which the respective picture is designed to represent." J. F. S.

ASTRONOMICAL PHOTOGRAPHY.

THE strides which have of late been made in astronomical photography were brought into strong relief by a paper which was read at the last meeting of the Astronomical Society of the Pacific, in the hall of the California Academy of Science, San Francisco, by Mr. Barnard, who explained how he had made photographs of the Milky Way, the Andromeda Nebula, etc., with a large portrait lens of 6-inch aperture and 31-inch focus. This was strapped on the tube of the 6¼-inch equatorial of the Lick Observatory, the clockwork of that instrument being controlled by hand with the slow motion rods at the eye-end. A star was kept bisected by the cross-wires in a high-power eye-piece on the 6½-inch itself. The additional weight of the camera made it necessary to constantly correct the clock throughout the exposures. With this instrument a negative of the Pleiades was made on August 23 last, an exposure of 1h. 15m. being given. This showed the Merope Nebula conspicuously, the sharp prong of nebulosity from Electra, and some of the nebulosity about Maia and Alcyone. A negative of the Milky Way (17h. 57m. 18.9 deg.) was made on July 28, with an exposure of 2h. 35m., and another on the Milky Way (17h. 56m. 28 deg.) on August 1, with an exposure of 3h. 7m., and a negative of the Great Nebula of Andromeda on August 26, with 4h. 18m. exposure.

The paper was illustrated by lantern slides from these plates. These were projected on the large screen by the oxy-hydrogen light. The nebulosities of the Pleiades were very conspicuous to the audience, and the beautiful cloud forms of the Milky Way, with the myriads of stars into which they were partially resolved, were exquisitely shown. The slide of the Great Nebula of Andromeda, when first projected on the screen, had a mask over it with a small hole representing (to scale) the field of the great telescope on Mount Hamilton; this was moved about over the slide showing successive fields of view over and around the Great Nebula. Only a small portion of the nebula could be seen at once; the mask was then suddenly removed, and the entire nebula, suspended amid countless stars, flashed into view. The concontrast between the limited space representing the field of the great telescope, and the sky as shown by the photographic lens, was startling in the extreme. This slide showed the great nebulous rings that were first proved to exist by Roberts. Mr. Barnard has estimated, by carefully counting areas, that the original negative of the Andromeda Nebula—8 by 10 inch—contains 64,000 stars that can be distinctly counted. This entire plate had been reduced to a lantern slide, which brought out peculiarities of arrangement in the stars that were not suspected in the original negative. In all of these photographs the stars were perfectly round.

We may here remind our readers that De La Rue, Huggins, and Vogel in the Old World, Bond, Rutherford, and Draper in the New World, by a gradual process of experimental work, succeeded in obtaining photographic images of stars and nebulæ, and even of the spectra of these bodies. Their success increased as the plates improved, and to-day their worthy successors—for many of these honored names have passed into history—can exhibit photographs of the nebulæ which show every detail visible to the eye, and bring out beautiful characteristics which the eye alone might never have discovered. Star maps are now generally to be made by photography. This work was suggested by Rutherfurd; it was first shown to be feasible by Professor David Gill, Her Majesty's Astronomer at the Cape of Good Hope, when he exhibited to the admiring members of the Royal Astronomical Society his photograph of the great Southern comet of 1882, which he obtained by an ordinary portrait lens with long exposure. This was not by any means the first comet photograph which had ever been made. After many previous experiments by others, Mr. Common had finally obtained a negative of "Comet b, 1881," a beautiful comet, still fresh in the memories of many of you, no doubt. And it was not so much the success of Mr. Gill's magnificent comet picture which awakened the astronomical workers to the importance of photographic methods, but the number and sharpness of the *star impressions* recorded on the plate. Throughout the tail, showing through that appendage apparently undimmed and scattered all over the place with extraordinary distinctness, were hundreds of stars, from the brightest in that particular field of view down to the lesser magnitudes entirely invisible to the naked eye. To many experienced photographers in the astronomical line, this picture came "as a revelation," as one of the foremost among them remarked. The importance of Dr. Gill's achievement was immediately perceived; it produced a revolution in at least one branch of observatory work, and on this hinges a curious bit of history.

That assiduous observer, Chacornac, many years ago, while astronomer at the National Observatory, at Paris, started in to make a complete set of "Ecliptic charts," for use in discovering minor plants, etc. The Ecliptic, it need hardly be explained, is that path around the heavens in which the sun, moon, and planets appear to describe their motions; and even the little planets or asteroids, with the most eccentric orbits, are bound to cross that line at some time during their revolutions. A minute chart of this region was then a great desideratum. A proof of its value is found in the list of discoveries made by Chacornac while executing the work. For a score of years the French Astronomer labored at his self-imposed task, and at his death, early in the last decade, had finished but 36 out of the 72 Zodiacal charts projected. The brothers Henry (Paul and Prosper), of the same observatory, two most admirable men, and devoted workers, attempted to finish Chacornac's undertaking. They succeeded in completing ten of the remaining 36, but at this point reached that portion of the Ecliptic occupied by the sun in mid-winter—in the constellation "Sagittarius," where the Zodiac crosses the Milky Way.

The Henry brothers had heard of Dr. Gill's photograph showing the multitude of stars, and in it discovered the solution of the difficulty. They would turn their telescope into a camera, and let the stars map themselves! They use a twin telescope, consisting of a 13in. photographic and a 9in. usual glass, mounted for a single equatorial.

For the work which is to be accomplished in pursuance of the decision of the Paris Congress of 1887 is to be done by the different observatories co-operating with telescopes of this type. The 10,000 or 11,000 photographic charts estimated as necessary to cover the entire sky will probably be completed in five or six years. The star chart congress will assemble again the coming month at Paris, and it will be supplemented by a general meeting of astronomical photographers, for the discussion and co-ordination of work in this grand field. The whole subject is so comparatively new that we may confidently expect even greater advances in the future. As it is, since the plan of operations (with a 13in. telescope of 15ft. focal length) was adopted by the congress, a new scheme, involving a complete set of charts by a single telescope (a photographic doublet of 24in. aperture) has been set on foot by Professor Pickering, the director of Harvard College University, the funds being provided by a wealthy New York lady, Miss Bruce. This projected camera, having a focal length of only 11 feet, will give plates each covering an area in the sky equal to five degrees square. With such a camera on a high mountain in the southern part of California, favored by clear, transparent skies, Professor Pickering expects to complete the entire series of charts alone in two or three seasons. We may also mention that the Harvard astronomers have made a specialty—spectrum photography. A prism in front of the telescope is used to disperse the light of the stars in view before passing through the object-glass—each star shown then gives a spectral image instead of a point. The spectrum of every star in a cluster like the Pleiades may be photographed on a single plate, and individual peculiarities studied. A distant unknown planet would possibly be recognized by the difference in its spectrum, since a star shines by its own light, and each planet in our system simply reflects the light of the sun. Any major planet in our system still unknown would doubtless be of exceeding faintness —probably smaller than the 10th magnitude—its motion among the stars would be remarkably slow and difficult to detect, and if such a planet really exists, it may, in the course of years, be discovered by means of photography. Here, then, there is a splendid field of scientific discovery opened for photography.—*Invention.*

ONE of the new things in the home of a young woman with artistic ambitions is a photographic screen as tall as herself. It stands in three folds, and inserted irregularly in each fold are cabinet and imperial photographs of her best-looking friends. The frame-work of the screen is old oak, and the folds are silk. One of the folds is salmon in color, the second is light blue, and the third copper brown. Upon these colors for a background, the black and white of the photographs stand out with striking effect.

OPERATOR (to fair lady sitter)—" Now, Miss, sit quiet for a moment; but you can wink as much as you like."

Fair Lady Sitter—" Why, does the camera understand winks?"

Operator—" Certainly, and if you wink too much it will reply in the negative."

And it was so quiet that one could hear the plates develop in the dark-room.—*Exchange.*

AMATEUR EXPERIENGES, VI.—"THE HOTEL WITH A DARK ROOM."

Editor AMERICAN JOURNAL OF PHOTOGRAPHY:

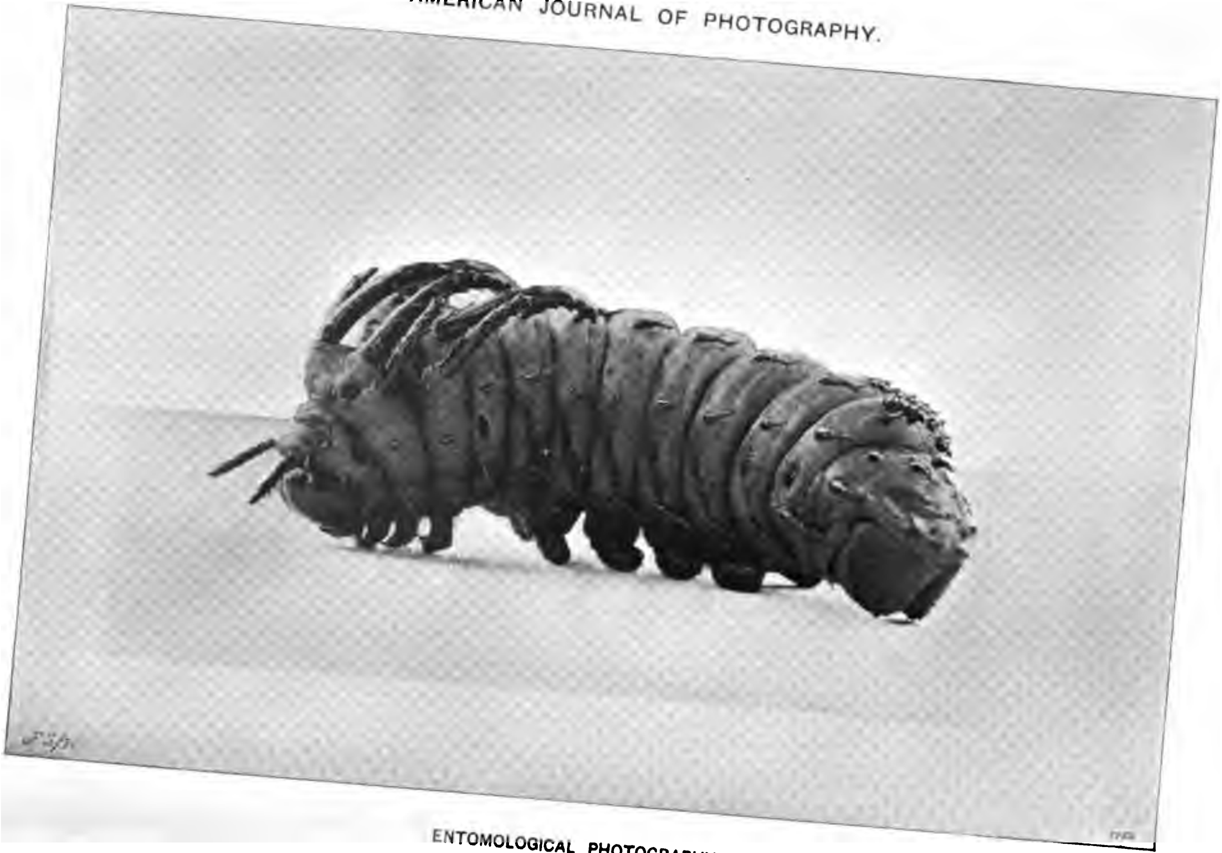
AGAIN I must complain, and pour a tale of woe in your patient ear. Last week I concluded to take a little trip, a photographic one, camera, tripod and all. The objective point was one of the numerous romantic glens in old Chester County, where primitive nature still holds her sway, and the sparkling rivulet falls over rock and ledge as it rushes between the rugged boulders in seeking its level. Majestic forest trees, interlocking their branches high up in the air, shade the stream from the rays of an August sun, while the feathered songsters carol merrily, and the chirrupy squirrel sports in the cool shade of the foliage, the whole forming an ideal spot for the artist or lover of Nature.

Near this beautiful spot a summer hotel had been erected, and, as an extra inducement for patronage, advertisements were scattered broadcast that a dark room had been provided, and was at the disposal of any amateur photographers who patronized the house. Well, I knew the spot: there were numerous romantic bits, log bridges, large rocks, waterfalls, sun-lit vistas,—all choice food for the camera. I concluded to take it in, especially as there were facilities for changing my plates if necessary. I arrived late in the morning, shook hands with the landlord, registered, and introduced myself to him as the secretary of the Leopardville Camera Club, and had come up on a trip to photograph around the glen. He told me he was glad to see me, but that the house was full; but he would have a room for me by night; so I waited for dinner, and then started out to photograph. Well, when I got down into the glen, or the falls, as the spot is called, I found there were just eighteen of me; male, female, young and old,—a couple of summer girls included,—while the outfits were as varied as the shooters. There were Kodaks, Hawkeyes, Detectives, Student outfits, a Blair, an Eastman and Rochester, and my own 4x5 Waterbury outfit. Was I disgusted? Every way you turned a lens or two was pointed at you, so I pulled up stakes and went further up stream, wandered around, enjoyed nature, filled my lungs with fresh air, and shot off my plates, mentally wondering what luck I would have. Thus the afternoon passed, and the lengthy shadows soon reminded me of the time to return hotelwards.

Well, when I got there fourteen of us were out on the porch before me. After washing up, I also went out on the porch to wait for the melodious gong to roar for supper. Just at that time the rest of us joined the party,—two dreams in white, with their escort, a fellow amateur; he was a member of a college camera club, and wore his uniform, corduroy knee-breeches, grey stockings, silk shirt, with pale blue sash, and cap on which was embroidered the club monogram. Before I could pick up an acquaintance with the trio the gong roared, and we all went in to take a shot at supper. After that was over I asked for my room, and being shown up was told the dark room adjoined, and we were at liberty to use it. After being left alone we started to investigate the hotel dark room so largely advertised. Lo, and behold! it was nothing but a large closet, without light, ventilation, or water; a rickety table, on which was a tin candlestick and tallow candle, and a bucket on the floor, completed the outfit of the hotel dark room. So far so good, we changed our plates, and being tired, thought seriously of turning in. There was a tap at the door; on the reply to come in the door opened, and there stood one of the amateur photographers. It was a woman amateur, one of the strong-minded kind; I afterwards found out that she was a country school teacher of the unclassified kind (I mean the school). She was of masculine physique, and wore a determined expression which brooked no contradiction. Well, there she stood, with plate box in one hand, an amateur developing outfit under the other arm, and her ruby lamp swinging from her thumb. I looked in dismay. She said sharply: "I want the use of the dark room to develop my plates; you may go down on the porch until I am through." I ventured to say I was about to retire for the night. "Can't help it, sir; you are detaining me." With this I glanced at her face; well, I thought perhaps I had better go down and sit on the porch for a while. After about an hour I ventured up. The lady had finished. I congratulated myself upon a night's rest, but as the fumes of the lamp and chemicals had filled my room, I opened door and windows to ventilate. Hardly had I sat down when a footstep sounded in the corridor; it came nearer and walked in; it was another amateur photographer. It was a "he" one this time. I sized him up as soon as I saw him. He made a streak for the dark room. He was a spare, middle aged man, of the decided crank species. He had all of his traps with him. It was one of the kind advertised in the country weeklies for $10.00 complete,—camera, lens, tripod, chemicals, etc., including developing, printing, and toning outfit, and a book how to make photographs, and instructions how any one without any previous knowledge can make twenty-five dollars per day with the outfit. The old fellow told me that this was his first experience, and he had an idea that he could develop the plate by electricity; so he had brought a medico-galvanic battery along to experiment with, if it took him all night. After he got through talking, I told him he was all out in his idea, and I wanted to go to sleep; then he got cross, and said he wanted his rights; if it hadn't been for the dark room he wouldn't have come here. I told him he had better wait until daylight with his experiment, as the light from his ruby paper lamp might have some effect upon his galvanic current; but he would not listen to reason, I wanted to go to sleep, and he wanted to develop, he threatened to call the hotel-keeper. While the confab was going on four more of us were in the hall waiting to use the dark room, so I went down and laid on a settee in the close stuffy sitting-room, for the rest of the night. With the first dawn of day I was out in the fresh air, with joints stiff and muscles cramped. After an early breakfast I paid my bill (including fifty cents for use of dark room), and headed for nearest railway station, camera, tripod and outfit, a disgusted amateur, who will henceforth avoid country hotels where dark rooms are provided for amateur photographers.

J. FOCUS SNAPPSCHOTTE.

A CHARACTERISTIC sign of the times, which shows the growing importance of photography, is the circumstance that all the great daily newspapers, in both the old and new world, are forced to give recognition to this especial branch of art. This is the result of the general interest which has been awakened in photography. One of the latest papers to recognize this fact, and to comply with the demand of the public, is the *Figaro*, of Paris, and it now devotes a column every Tuesday, *o'soleil*, to photographic topics and information.



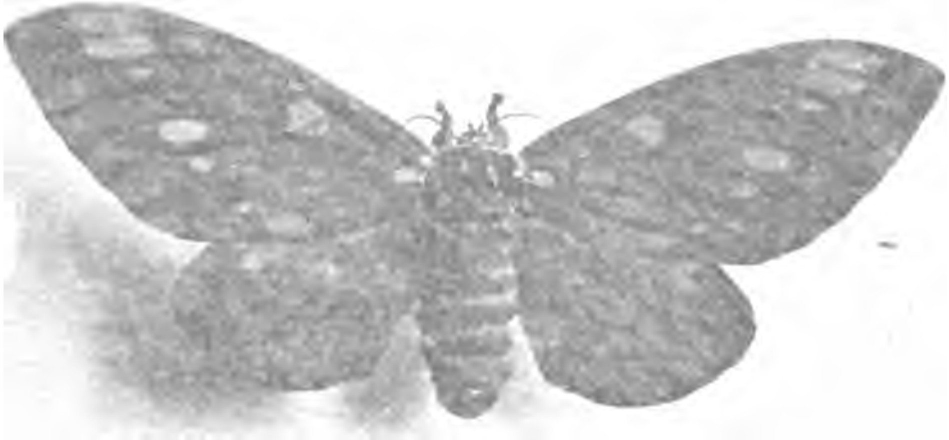
ENTOMOLOGICAL PHOTOGRAPHY.

CITHERONIA REGALIS ("HICKORY HORNED DEVIL").

NATURAL SIZE, FROM LIFE.

NEGATIVE BY J. F. SACHSE, AUGUST 9, 1896.

IVES PROCESS.--CROSSCUP & WEST ENGRAVING CO.,
911 FILBERT STREET, PHILADELPHIA.

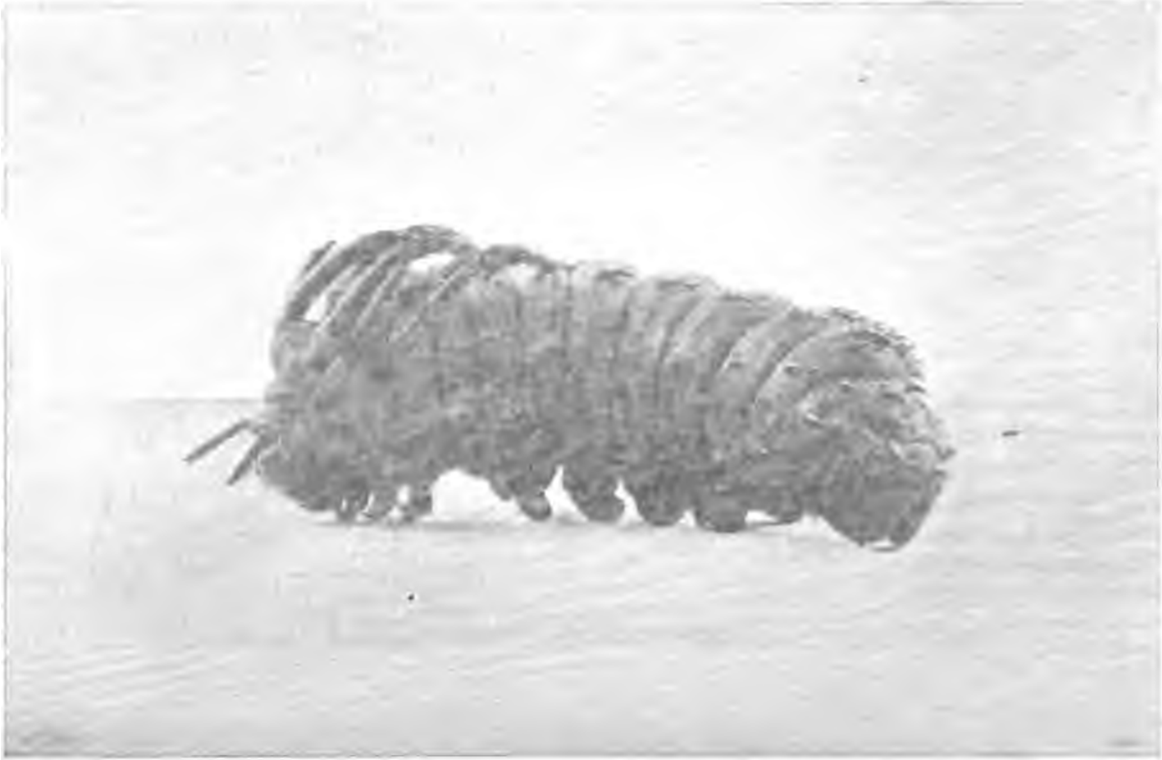


ENTOMOLOGICAL PHOTOGRAPHY.

CITHERONIA REGALIS "ROYAL HICKORY MOTH".

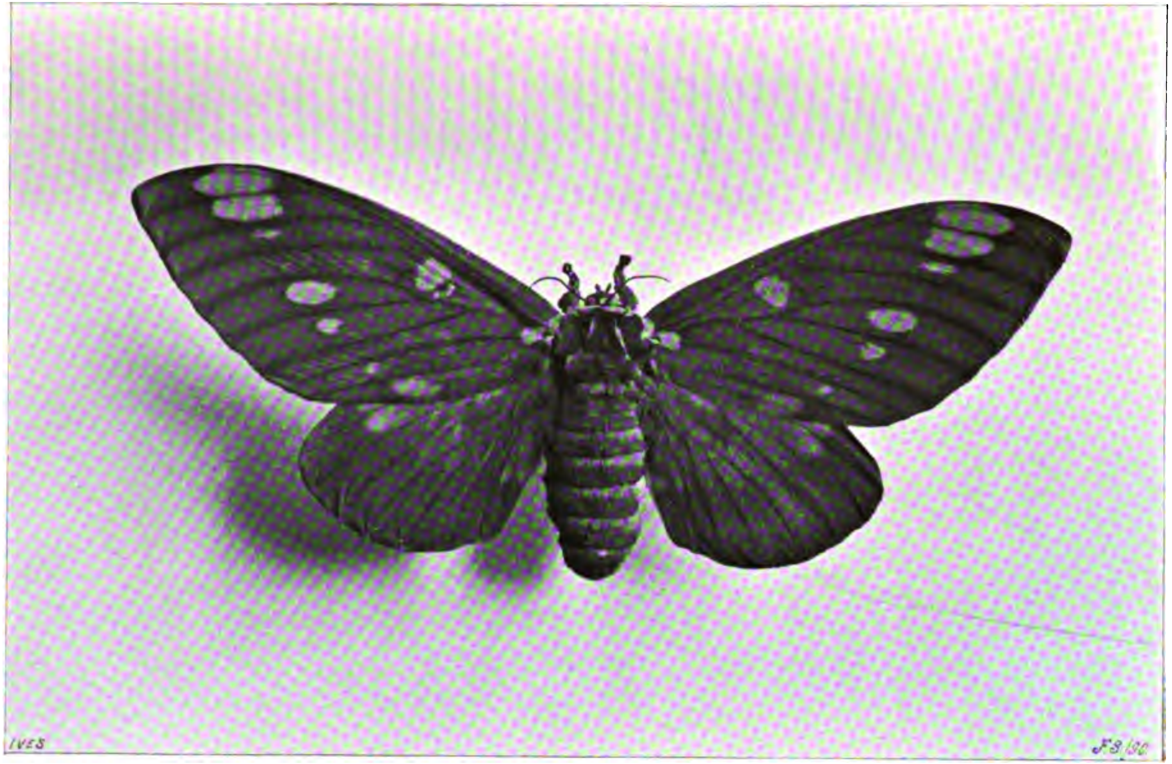
THREE FOURTHS NAT. SIZE. [illegible]

NEGATIVE BY J. F. SACHSE. [illegible]



ENTOMOLOGICAL PHOTOGRAPHY.

CITHERONIA REGALIS ("HICKORY HORNED DEVIL").



ENTOMOLOGICAL PHOTOGRAPHY.

CITHERONIA REGALIS ("ROYAL HICKORY MOTH").

THREE-FOURTHS NATURAL SIZE.
NEGATIVE BY J. F. SACHSE.

IVES PROCESS.— CROSSCUP & WEST ENGRAVING CO.,
911 FILBERT STREET, PHILADELPHIA.

ENTOMOLOGICAL PHOTOGRAPHY.

AS a further illustration of the manifold uses of the camera, in connection with the sensitive dry plate of the present day, in the field of biology and the natural sciences, we present to our readers a picture of a rare and curious entomological subject, showing what can be done even with so generally despised an object as the larva of the Lepidopterous insects. It is here where the great value of entomological photography shows itself. Every entomologist recognizes the great difficulty experienced in attempting to preserve specimens of the larva of the various moths and butterflies, as from the peculiar construction of the tissues of the subject, it is next to impossible to preserve the insect with anything like a natural appearance. Even under the most favorable circumstances the prepared specimens lose their color, and soon shrivel and become valueless for study and comparison. Heretofore drawings have been made of the larva, a proceeding always expensive, and often unsatisfactory. It is here where photography asserts its superiority, and with proper appliances and competent operators, results may be obtained showing characteristics not to be obtained by any other means. For example, we will take our illustration: it would be an easy matter to stop out the negative, print on heavy, plain paper, and then lightly tint with proper shades in water colors. When we take into consideration the large field open to the students when they follow the study up with the moths and butterflies, there really seems no end to the possibilities for interesting and scientific study.

To return to our subject. Technically, the specimen is known as the *Citheronia regalis*. In the South, where it is more common, it is known among the blacks as the "Hickory-horned Devil." It is difficult to find a more repulsive-looking animal, or one which has more the appearance of our ideas of an antediluvian monster. Nor is it any wonder that the naturally superstitious blacks of the South should fear the insect, as they are taught from childhood that its bite is more deadly than the rattlesnake or moccasin, or that even to meet one of the worms is an evil omen, and forebodes bad luck.

In our latitude, 42d parallel, the worm is exceedingly rare, being seldom met with. The specimen photographed was found August 7, crawling on the Lancaster turnpike, within the bounds of the village of Berwyn. While in motion, it was fully six inches long. To photograph it, a piece of white paper was laid on a gate-post, and the worm laid on the paper. Three negatives were obtained. The one here reproduced shows the worm in its natural size, with contracted segments. The color is a greenish-grey; the body-spines glossy black; the six horns growing out of the head are hard and bony, of a deep orange-red, as are also the two front tusks; the six front legs are a dirty red color, and are here drawn into the body; the eight oval spots on the side are the breathing orifices of the animal; the lower jaw, between the forelegs and tusks, is of a dirty yellow ochre. The subject was exceedingly nervous, and quick in its movements. When startled or angry, the animal raises up its head, throwing back its horns, and elevating the tusks, while the six forward legs are thrown forward, probably a full half an inch. A fairly good negative was obtained of the worm in this position. The third negative shows the erect head slightly enlarged.

The moth or butterfly of this worm is known as the "Regal Hickory Moth," measuring about seven inches with outspread wings, and is exceedingly short-lived, neither male or female showing any sign of digestive organs. The moth emerges forth from the ground, same as the cicada, some time in June, and its whole mission seems to be the reproduction of its species. For this purpose they are endowed with an unknown sense, or peculiar power, said to lay in their antennæ, by which the male, though miles away, is attracted to the female. An experiment was made to prove this; a female moth was caught and taken to the city, and at night was placed near a window,—the next morning two male moths were found and captured. The female lays her eggs on a hickory or black walnut tree, on which the larva feeds as soon as hatched, which usually takes place within a few days, both of the moths dying soon after their function is fulfilled. The young worm grows rapidly, and at the age of six weeks attains the size of our specimen, and is then ready to burrow himself into the ground, and relapse into a state of chrysalis. After the worm has encased himself in the ground he sheds his skin, and draws his segments up, and envelopes itself in a peculiar chitinous substance, having the appearance of a piece of ordinary black licorice, about two inches long. Thus it remains in a dormant state until the following summer, when the moth issues forth, expands itself, and the same process is repeated.

Through the courtesy of Dr. Henry Skinner, curator of the Entomological Section of the Philadelphia Academy of Natural Sciences, we are able to present a picture of the moth.

J. F. SACHSE.

HINTS ON PHOTOGRAPHIC PORTRAITURE.

THE photographic portrait has become so popular that there are very few individuals who have not at some time or another submitted to the rather unpleasant process of "sitting" for it, and most people have in their homes considerable numbers of this product of modern "art." But though the quantity is great the quality is poor, and a good portrait, which is at the same a good picture, is an exceedingly rare bird indeed. The chief causes of this are hurry and want of consideration in the matter of posing and the arrangement of accessories on the part of the photographer; and ignorance, obstinancy, bad taste, or nervousness on the part of the sitter.

Every sitter ought to be a subject of study to the operator, who, in the case of strangers, should talk a little to his subject before posing, so as to gain some insight into his individuality, and place him (or her) at ease, so that a constrained attitude and unnatural expression may be avoided. The mere anatomical lines of face and figure do not so much mark the individuality of each person as his habitual postures, habits of holding the head, hands, etc., and tricks of expression; but these are very apt to disappear in the photograph, owing to the want of skill of the operator, or frequently to self-consciousness on the part of the sitter, who will often try to adopt a mien quite foreign to his nature. "Be natural" is a piece of advice which should be impressed on all sitters. People with merry round faces make themselves ridiculous in the attempt to assume a determined or tragic air, while those whose features are naturally classic and stern endeavor to soften their expression by calling up an idiotic simper. Most people wish to appear what they are not. A learned lady in spectacles will insist on being " taken " with a playful fan, in a wild attempt to ogle the camera; a bright young girl will try to look the victim of blighted affection; a man who has never been astride of a horse will sport top boots and breeches, and carry a riding whip; while a gentleman *de sang pur* looks like his own groom. To avoid affectation is most important if one wants a good portrait, and in the matter of expression the best thing is not to think how one is looking, but to follow out some pleasant train of thought which will naturally call up a pleasing expression; an expression summoned up "for this occasion only" is always objectionable.

If there is any blemish or deformity about the person the operator's attention should be directed to it, so that it may be concealed if possible. For instance, the nose is very frequently not quite straight, and in such cases a full-faced portrait accentuates the defect, while one side of the face will be better looking than the other, and should therefore be the side to appear.

An ugly hand or deformed finger appearing prominently will spoil an otherwise excellent picture, and a beautiful hand, if carelessly advanced too near the camera, becomes large, out of all proportion. The manner in which the hands are neglected in posing is a matter which calls for reform, since the hands are quite as characteristic of their owners as is the face, so much so that when criminals are photographed for purposes of identification the hands are always represented as changing less and being less easily disguised than the face.

Obstinacy on the part of the sitter in the matter of pose often leads to failure. People generally think they can pose themselves better than the artist can pose them, though few are able to do so. There are one or two chief points, however, which it is well to remember, and the first is that whatever part is nearest to the camera appears largest in proportion to the rest of the picture. Hence, a corpulent person sitting facing the camera with the head tilted rather back, comes to look like a barrel surmounted by a cocoa-nut. Short people should be taken standing, and nothing should be placed in the foreground which can dwarf the figure; while, if placed behind an object such as the usual balustrade, will give height. Stout people are best vignetted, and full-length figures seldom look well, unless in the case of children or ladies with long trained gowns. Faces with strongly-marked features are often unrecognisable when taken " full," in which those with unpronounced features, and especially children, alone look well. The " three-quarter face " is the most generally becoming, and should always be adopted in the case of thin people. When one side of the face is handsomer than the other the hair should be dressed to suit it, and it may be given almost in profile, which position is also indicated when there is a very handsome nose. When the forehead and circumference of the head is large it should be tilted slightly back to prevent exaggeration. If the sitter has ugly hands, dark gloves should be worn, with an out-door or evening dress, so that they may not look incongruous. A full, round figure is best shown in profile with one arm raised, as in catching at a bough, or holding back a curtain. To show off beautiful hair a dressing-gown may be worn, and an effective picture made by brushing it before a mirror. Ball-dress is most becoming when the neck and arms are beautiful, and people with short, thick necks should always expose the throat, discarding high collars, lace wraps, velvet bands, bead ornaments, necklaces, and the like. The bead trimmings now so much worn come out very badly in photographs, since the light is violently reflected from the surfaces of the beads. Fussy trimmings round the throat suit those who have long, thin necks nicely, and velvet or fur next the skin is always becoming. A dark, thick material next the skin, however, affords too violent a contrast, and should be softened by an edge of lace, black lace showing the skin through it being effective for this purpose. White lace should never be worn for photographic purposes, as it makes the skin look dark; this is obviated by passing it through coffee-water, or tea. It must be remembered that photography very frequently exaggerates dark shades, while making light shades appear too light. Hence, in dressing for one's photograph, violent contrasts of shades should be avoided. Large patterns of all kinds, such for example as the fashionable plaids, are objectionable as marking the figure out into so many inches, and large dark patterns on a light ground are especially to be tabooed. Stiff lines and irregularities in the cut of dress are objectionable, and long soft folds of clinging materials are the most becoming. A simply made velvet or cashmere gown is the most desirable from a photographic point of view. Bodices and skirts of different colors or shades come out badly, seeming to cut the figure, and make it shorter and broader than it should be. Dead white and linen collars are most unbecoming, and gentlemen should never be photographed in white waistcoats; and if they must wear shirt fronts and collars, it is best that they should be dirty ones. Such patches of white concentrate the light upon themselves, and thus, by attracting attention, throw the head and face in the shade. This is why boating and cricketing dresses or uniforms are more becoming than ordinary male attire. A very good rule is to avoid wearing anything remarkable in the dress, which will take the attention of the beholder away from the central point of interest—the face. While the effect of pure white dresses is to make the skin appear dark, unrelieved black is equally unbecoming, giving it a deadly pallor. The cold colors, such as blue and violet, in photography become almost white, while the warm colors come out too dark, yellow appearing black. Light colors should be worn by children and by pale, thin persons, while stout people and those of dark complexion should wear dark clothes, since the apparent size of the figure is increased by light clothing.

Truth should, of course, always be the aim of portraiture; but truths may be set forth in an unpleasant way, and justice should be tempered with mercy. There is no sin in accentuating the beauties and concealing the defects of each sitter. Thus, by various arrangements of light the stout can be freed from superabundant fat, and the thin be made to appear plump. Thus, while a corpulent subject should be placed in the usual portrait light with strong shadows, so as to reduce the roundness of face and form, the light should fall on the short side of a thin person's face, the broad side being in half-tint, and the lighting be brought from as low a point as is consistent with the retention of delicate modelling, Light eyebrows, which are apt to come out white, should be darkened with a charcoal pencil, and as light blue and grey eyes come out too pale, their appearance is improved by rubbing in a little charcoal around the eyelids. Freckles, being yellow, come out as black specks; but this may be obviated by rubbing the face briskly with a towel immediately before the sitting, so as to make it red all over. If powder is used, one must be careful not to put on too much of it; and a pale pink or cream-colored powder, to match the skin, is better than a white one.

A rough surface next the skin is far more becoming than a smooth one, since it allows the eyes to dwell on the smoothness of the skin. For this reason also the hair should not be greased for some days before having the portrait taken, and it is a good plan to wash it on the day before with a little soda water, so that it may be fluffy. If the hair is greasy and brushed neat and smooth, by reflecting the light strongly, it draws attention from the face. The hair should not be brushed abruptly back either for ladies or gentlemen, but should be arranged in a negligé way, so as to frame and set off the face.

One should never be photographed when in ill-health or in a bad temper, for it must be remembered that the camera exactly reproduces the expression of the moment, but that the portraits will last for years, and be seen by many whose estimate of one's character may be formed upon them. This is an excellent reason for taking pains that the likeness shall show one to the best advantage, and for being careful that such libellous productions as are so often seen at the present time, and were still more general some years ago, shall not be sown broadcast. —*Ada S. Ballin, in The Camera.*

PHOTOGRAPHIC SOCIETY OF GREAT BRITAIN.*

THE exhibition of this society for 1890 will be held in the gallery of the Royal Society of Painters in Water Colors, 5a, Pall Mall East, London, S.W.

The exhibition will be inaugurated by a conversazione, open to members and their friends, at 8 p.m., on Saturday evening, the 27th of September.

The exhibition will remain open daily (Sundays excepted), from Monday, the 29th September, until Wednesday, the 12th of November.

Medals will be placed at the disposal of the judges for artistic, scientific, and technical excellence of photographs, and for lantern transparencies add apparatus.

In accordance with rule No. 37 of the society, the under-mentioned gentlemen have been elected by the members to act as judges and have consented to serve:—Capt. Abney, R.E., C.B., D.C.L., F.R.S., Valentine Blanchard, W. England, J. Gale, Henry Moore, A.R.A., H. P. Robinson.

REGULATIONS.

PHOTOGRAPHIC PICTURES.—Each exhibitor will fill up a printed entry form (supplied by the Society). This must be enclosed, with letter of advice, and addressed to the "Secretary, Photographic Society of Great Britain, 5a, Pall Mall East, London, S.W."

At the back of each frame must be written the name and address of the exhibitor, with the title or description of the picture, and the number (if there be more than one) to which it refers in the entry form. Each frame or picture may have the exhibitor's name, and the title of the picture, neatly inscribed, and this only. Pictures in Oxford frames, and pictures previously publicly exhibited within the London Postal District, will not be admitted. With any work sent in, produced by a special process of the exhibitor, information as to particulars should be communicated.

Photographs colored by scientific or mechanical means will be admissible. Photographs colored by hand will not be admitted. Negatives and transparencies will be admitted.

No charge will be made to members of the society for exhibiting their pictures; but to non-members a charge of one shilling per square foot will be made for wall space, the minimum charge being five shillings. It is requested that postal orders to pay for the wall space required by non-members be enclosed with the entry form; and should any of the pictures sent not be hung, the due proportion of wall space charge will be returned. The charge for wall space to those exhibitors who may become members of the society at the November and December meetings, will be remitted, and the amount paid credited to their entrance fee and subscription.

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* Such portions of the circular as relate to photographic apparatus are omitted.—ED.

Foreign exhibitors are specially invited to contribute. The society will pay the carriage of photographs one way, and provide frames during the exhibition for photographs approved by the judges. There will be no charge for wall space.

Exhibits sent in packing-cases (carriage paid) must be addressed to the " Photographic Society of Great Britain, care of Mr. James Bourlet, 17 Nassau Street, Middlesex Hospital, London. Packing-cases must arrive not later than Monday, September 15th: they will be too late if received after that date. No packing-cases can be received at the gallery.

Lantern transparencies sent in competition for a medal, not less than six, should be fitted (removable) in a frame to stand upon the table, and it is desirable that duplicates be sent for exhibition in the optical lantern. They will only he eligible for award when both the negatives and slides are the work of the exhibitor.

Photographic lantern slides will be shown with the society's optical lantern during the exhibition. The loan of slides for this purpose is invited; they must not exceed 3¼ inches in height, and, to enable the committee to select and arrange them, must be delivered at the gallery not less than one week before the evening of their being shown in the lantern.

It is to be distinctly understood that the sending of exhibits signifies acceptance by the exhibitor of the decision of the council, upon all matters connected with the exhibition, as absolute and final. The council do not hold themselves responsible for any damage that may happen to the pictures, or other exhibits, whilst in their custody, but they will take every precaution to insure their safety and prompt return to the owners at the close of the exhibition.

To avoid damage to frames, exhibitors are requested have sunk backwards to their frames, with the fastening nails not projecting, and the whole covered with thick brown paper.

REMOVAL OF EXHIBITS.—Exhibits received in packing-cases will be repacked and despatched directly after the close of the exhibition. Exhibits left at the gallery by hand must be fetched away on the day oppointed, due notice of which will be sent to the exhibitors. Particular attention is requested to the removal of exhibits on the day appointed. If not taken away then, considerable expense is incurred by removing them from the gallery to be warehoused which will be charged to the exhibitor. Exhibitors not being able to send to the gallery, can, by giving instructions to the Assistant Secretary, and paying the cost, have their pictures packed in a case and sent to destination by carrer.

Blank entry forms and any further information respecting the exhibition, apparatus, lantern slides, also nomination forms for membership, can be obtained from the Assistant Secretary, Edwin Cocking, 5a, Pall Mall East, S.W.

A. M. MANTELL, CAPTAIN, R.E.
8 Mansion Row, Old Brompton, Chatham. *Hon. Secretary.*
July, 1890.

OUR ILLUSTRATION

IS the outcome of a series of experiments made with commercial orthochromatic plates to determine the advantages to be attained by their use in general landscape photography, with only such means as come within the scope of the average amateur. The plates used were Cramer 30, Leed 23, Carbutt 16, Carbutt special and orthochromatic, and Vogel's eosine of silver plates. As the great heat of the weather precluded the staining of any of the ordinary plates, the test narrowed down to the various plates as bought. The lens used was an ordinary Darlot stop F 8. The subject selected was a romantic glen on Crum Creek, in Delaware Co., Pennsylvania. Beautiful as is the scene, it presents difficulties to the photographer not easy to overcome. As will be seen, the glen is dark, except when the sun breaks through the foliage, and shines brightly upon the water as it falls over the dam, thus presenting all contrasts of light and shades of green. It was necessary to sit the camera up in the swift-running stream, under the overhanging branches of the surrounding trees. The use of color-screens had to be abandoned on account of the movement of the leaves, while the exposure was lengthened to double the time which would have been given to an ordinary well-lighted subject. The experiment fully demonstrated the superiority of the orthochromatic plate for landscape work,—provided the proper developer be used, one that will allow sufficient development to bring out full detail in the shadows, and at the same time give the requisite density. Every developer is not suitable for orthochromatic plates; this is especially true regarding the eosine silver plate. Our favorite developer for color-sensitive plates has always been:

I.—	Pyro	2 drs.
	Citric acid	15 gr.
	Oxalic acid	15 gr.
	Water, dist.	4 oz.
II.—	Carb. Soda	3 oz.
	Sulphite soda	3 oz.
	Water, dist.	16 oz.

For use, 2 dr. No. I.; 4 dr. No. II.; water, 3 oz.; bromide, 1.10, 3 drops. While this developer always worked satisfactorily with the Carbutt and other plates, it did not give enough density with the Vogel eosine of silver plate. To overcome this difficulty we tried various developers; hydrochinone being apt to fog, while eikonogen did not give dense enough shadows. After much experiment we found a developer to act satisfactorily, as may be judged by our illustration. Should subsequent experience prove the correctness of our judgment, the following formulæ may fill the long sought for universal developer for color-sensitive plates, as well as ordinary plates, viz.:

I.—	Sulphite of soda	5 drachms.
	Eikonogen	45 grains.
	Hydrochinone	15 grains.
	Water, distilled	8 oz.

Heat water to boiling point, and add the sulphite of soda; when dissolved add eikonogen, then the hydrochinone. Shake until thoroughly dissolved. After this solution has stood for ten hours add: Carbonate of potash, 1 ½ dr. For use, take equal parts of developer and distilled water. The picture should come up quickly and perfect in all details, with full density in the shadows. J. F. S.

PHOTOGRAPHY IN PORTGUAL.

A NEW star has appeared in the firmament of photographic literature. It has risen in far-off Portugal: *The Boletim do Gremio Portuguez de Amadores Photographicos.* It is published under the direction of Antonio Dias da Costa, Juliano Machado, and Arnaldo Fonseca, of the Photographic Society of Lisbon. The *Boletim* contains 32 pages of instructive matter, and is embellished with a print on Pizzighelli paper with platinum; this is a view of the "Payzagem de Cezimbra," from a fine negative by Sr. Dias de Costa, as the *Boletim* informs us " que hoje publicamos, foi conseguido nas seguintes condicoes." It was made with a Dallmeyer rectilinear, focus 22 c.m. developed with pyro; exposure one second, and was developed in 10 minutes. We wish our new contemporary long life and success. In one thing we envy the new enterprise. By reference to their prospectus we find their charges for advertising are set down as $1000 per page for a single insertion, with a discount of 5, 10, and 20 per cent. respectively, if continued for three, six, or twelve months. We are willing to take several pages of Portuguese ads. at the same figures. The subscription price for the *Boletim* is $2400 per year, or $200 for a single number. No discount,—no chromos. While perusing the above, the thought was revolving in the mind of the writer whether that would not be a grand field for him to emigrate to, provided the photographic editors were paid in proportion to the advertising and subscription rates. Pinnacled and turreted castles arose before our eyes; the horizon assumed a roseate hue as we saw ourselves in the far-off land of port wine and raisins, grinding out " Farmulario, Reveladores, Annonces, Revista das Jarnaes," etc., for the instruction of the Senhor Socios de Amadores Photographicos. But while thus building castles in the air our confrere, who had read the rates, asked whether we knew that it took 100 Portuguese dollars to make an American ten cent piece; the disenchantment was almost too great, ice restored us, and we are still on the AMERICAN JOURNAL OF PHOTOGRAPHY.

ADOLPHE.

PROF. J. M. EDER, in his *Jahrbuch für Photographie für 1890*, recommends the following eikonogen-soda developer:

A—	Water	3 liter.
	Sulphite soda	200 gr.
	Eikonogen	50 gr.
B—	Water	1 liter.
	Cryst. carb. soda	150 gr.

For use 3 parts A, 1 part B solutions, to be kept in separate bottles, Fresh developer always be used for portraiture. As a restrainer, use the usual bromide solution 1.10.

THE *Photographisches Wochenblatt*, Aug. 7, 1890, publishes an endorsement of the new photographic objective of Dr. E. Hartnack, of Potsdam. These new lenses prove of especial value for cameras of the so-called hand or detective type, the results being remarkable free from distortion and perfectly rectilinear. The article is illustrated with a reproduction of an instantaneous view of an aquarium, showing the extreme rapidity of the new lenses, together with the sharpness of definition.

The well-known optician, Carl Zeitz, in Jena, has taken out a patent on a double photographic lens of novel construction, in which the new optical glass forms a conspicuous part.

THE CONVENTION.

THE eleventh annual convention of the Photographers' Association of America is a thing of the past. Although held in the National Museum of the United States at Washington, favored with weather which was all that could be desired, and boomed by the installation of the Daguerre Monument, we regret to say that the convention did not attract the attention of press and public that was expected, the attendence even proving smaller than at any previous convention. The display made by the various dealers and manufacturers was fair, notwithstanding the fact that several of the leading exhibitors labored under the disadvantage of a lack of space for their exhibits. The entries for the various prizes were numerous, without however embracing anything new or above the standard of ordinary merit.

The convention was called to order by the President, J. Appleton, promptly at 10.30 A.M., August 12, introducing Prof. O. T. Mason, Curator of Ethnology of the National Museum, who bid the assembly welcome, which address proved a happy bit of inspiration. After which Mr. W. H. H. Clarke read a careful and exhaustive report on the progress of photography during the past year. This was followed by the reports of the Secretary and Treasurer, both showing a flourishing state of affairs. The next business in order was the selection of the location for the convention of 1891, and the announcement of the committees. Buffalo proved the choice of the majority, and it was so ordered.

The President then announced the committees as follows:

Committee on Nominations—E. J. Pullman, of Washington; C. W. Motes, of Atlanta, Ga.; E. P. King, of Providence, R. I.; F. W. Guerin, St. Louis; John Hood, Philadelphia. Committee on Awards—Grand prize class, C. W. Motes, Atlanta; class A, C. Canfield, New York; class B, E. P. King, Providence; class C, John Snyder, Columbus, Ohio; class D, L. W. Overpeck, Hamilton, Ohio; class E, Theo. Heinig, Dayton, Ohio; class F, E. Decker, Cleveland; class G, A. H. Plecker, Lynchburg; class H, W. C. G. Kimball, Concord, N. H.; S. L. Stein, Milwaukee, and Prof. Thomas W. Smillie, Washington.

Then followed the President's address, which completed the first day's proceedings.

On assembling the second day, the Committee on Nomination made their report, presenting the names of the following candidates for the officers of next year:

President—George Hastings, of Boston.
First Vice-President—S. L. Stein, of Milwaukee.
Second Vice-President—W. Stuber, of Louisville.
Secretary—L. C. Overpeck, of Hamilton, Ohio.
Treasurer—G. M. Carlisle, of Washington, D. C.

Several interesting papers were then read on different subjects; the proceedings of the day closing with a lantern exhibition in the evening.

On the third day the report on the monument fund was read, showing a deficiency of about $5000. This was, however, reduced by the personal efforts of Mr. G. Cramer, of St. Louis. In the afternoon the election of officers was taken up, and resulted in the election of the slate that had been prepared, with the exception of the Secretary, W. Davis, of New York, being the chosen man. In the evening several more papers were read.

Friday, the last day, was taken up with the Daguerre inauguration.

Following is the list of awards. By one of those curious coincidences, which so often happen in competitive exhibitions, C. W. Motes, chairman of the grand prize class, himself gains the chief money prize.

AWARD OF PRIZES.

The award of prizes offered by the various photographic dealers and manufacturers was then made before the announcement of the regular awards. Anthony's prize of $100 for the best bromide was awarded to Mr. Motes, Atlanta, Ga.; the second, $50, to A. A. Knox, New York. Anthony's prize for landscape on climax films, $50, to C. E. Vudenburgh, Elizabethtown, N. Y. An air brush was awarded to P. Fleming, Chicago, for the best water color, and one to C. Y. Waldeck, St. Louis, for the best black and white portrait, by the Air Brush Company. One hundred dollars was awarded to P. H. Rose, of Providence, for the best print on albumen paper.

AWARD OF PRIZES FOR PHOTOGRAPHS.

The committee on prizes then reported. The grand prize—a bronze group, entitled " Nearing the Goal "—was awarded to George H. Hastings, of Boston, for the best series of three photographs illustrating the poem " Enoch Arden." The other prizes were awarded as follows:

Class A—S. L. Stein, Milwaukee.

Class B, portrait photography—First, Dana, New York; second, J. Landy, Cincinnati; third, O. P. Scott, Chicago.

Class C—First, W. Steuber, Louisville; second, J. E. Stimpson, Appleton, Wis.; third, C. O. Heinig, Dayton, O.

Class D, landscapes—First, Heinberger & Son, New Albany; second, Miss C. E. Seers, of Boston; third, Zeiboch, of Niagara.

Class E, marines—Allen & Rowell, of Boston. Architectural—First, E. W. Lincoln, Cambridgeport, Mass.; second, George H. Hastings. Retouching—First, F. S. Clarke; second, C. P. Wilcox.

Class F, enlargements—First, W. G. T. Kimball; second, Rothengatter & Dillon.

Class G, best improvement in photographic appliance—C. H. Godman & Co.

Class A, foreign portraits—First, Lafayette, of Dublin; second, Gotheil, of Konigsberg, Germany; third, J. Hanna, of Auckland, New Zealand.

The committee awarded diplomas to the exhibit of burnt-in enamels of Benjamin Bros., and Werner, of Cincinnati, and a diploma to Ullman, of New York.

How photography expands at the present time, from day to day, is apparent to most all observers, and it will not be long before all barriers within reason are removed in all civilized countries. So strong in this demand, that the prefecture of police in Paris has been forced to relax the rigid rules against general amateur photography within the walls of Paris. This has only been accomplished after numerous representations from the General Syndicate of Photography, and now any respectable person may photograph in Paris without the annoyance of obtaining a preliminary authorization from the prefecture.

PHOTO-MECHANICAL NEWSPAPER ILLUSTRATIONS.—There is hardly a department in art that is so constantly and so viciously assailed as that of newspaper illustrating. The censure heaped upon the newspaper cut by the wits is occasionally deserved. To be sure, many of the pictures in the daily and Sunday papers are, to put it mildly, entirely devoid of the elements of art, but as a rule they are meritorious sketches, frequently drawn by artists of reputation. The office of the newspaper cut is truly to illustrate; if it often fails in this it is due to the ignorance of the artist, who is unaware that picturesque effect alone, which may be destroyed by the rapid manner in which the daily paper must must necessarily pass through the press, and also the poor quality of paper and ink, is inadequate to convey the impression required.

It is extremely interesting to note the changes, the evolution as it were, of the newspaper cut. From the battered, blurred, and inartistic blot that formerly disfigured the pages of the few papers that published illustrations, it has advanced to the present stage of suggestive, bold, and graceful outlines seen in the better class of journals. This advancement is due principally to the facility of reproducing by photo-mechanical means the sketches of the artists. The illustration for the newspaper should, in order to secure the best effect when printed, contain as few lines as possible. Details must be left severely alone. It cannot be clearly reproduced on paper while the press is turning out thousands of printed sheets each hour. The background must be indicated only. The ill effects that ensue when it is too fully expressed is too frequently seen to require any special comment now.

Those who like to make slurring remarks on newspaper illustrations should remember that they are not intended as finished works of art, and should also take into consideration the rapidity with which they have to be drawn and engraved. To be sure, the latter process is done by photographic means, but it is none the less wonderful, for all that, to find in the morning paper, along with the report of some important piece of news, several illustrations of the scenes otherwise described. Perhaps the the newspaper portrait meets with more disfavor than any other illustration that appears in the column of a daily paper. Those who know the original of the portrait declare very seriously that they would not have recognized it had it not been for the name beneath it. While occasionally this censure is well earned, in the majority of cases it is merely an expression of the predjudices in the minds of immature critics. As a rule, the newspaper portrait is a fair one, and frequently is a fine piece of work.

So extensive has the art of newspaper illustration grown that special instruction is now given in many of the art schools to fit the pupils for drawing for photographic processes. It ought to be mentioned here that a large part of the failure of this class of illustration is due to the imperfectness of some of these processes, and also to the unsuitability and frailty of several of them when subjected to the fast newspaper press.—*Public Ledger.*

THE latest reports from Herr Franz R. Veresz announce that he has succeeded in obtaining colored prints with an exposure of fifteen seconds, when formerly two or three hours were required to obtain the same effect; moreover the results are said to be better.

GENERAL NOTES.

DURABLE SENSITISED ALBUMEN PAPER.—*Deutsche Photographen Zeitung* describes a method of preparing durable sensitive albumen paper. It is as follows :

Nitrate of silver	2½	drams.
Citric acid	2½	"
Alcohol	2½	"

dissolved in 4 ozs. of distilled water, is the sensitising bath used by the author with uniformly good success. The citric acid combines with the silver salt, citrate of silver formed, deposits frequently on the bottom of the jar. It is advisable therefore to test the bath for the quantity of silver contained, before using it, preferably so by the volumetric method, Has the bath been reduced in strength, add more nitrate. The alcohol present assists in coagulating the albumen. When about ten sheets of paper, 18x22, have been silvered on a bath of about three pints, more silver must be added to keep it of uniform strength. Experience has proved the following to be about correct for a quantity of three pints :

Alcohol	5½	drams.
Nitrate of silver solution (4.7)	1	ounce.
Citric acid solution (3.10)	1	ounce, 3 drams.

Paper sensitised upon such a bath keeps well for several months. Citrate of silver deposited should be filtered off and thrown among other silver waste, for ultimate reduction. The paper silvered had best be drawn over a glass rod, and blotted off. Another method is to omit alcohol and citric acid from the solution, but after the paper has been sensitised and blotted it is then floated with the reverse side upon a ten per cent. solution of citric acid. The former method, however, is preferable. The gold toning bath for paper made durable by means of citric acid should always be freshly made, and be decidedly alkaline. Notwithstanding the most careful washing, citric acid, if still present, would induce to a decomposition of the toning bath and a precipitation of metallic gold.

THE NEW CELLOIDIN (ARISTO) PAPER.—To increase the number of the various kinds of chloride of silver papers at present in the market seems not advisable. There is no essential difference in their quality. The best of them, the Obernetter paper, shares with its competitors a number of properties which limit its practical application, no matter how fine the results are in some instances. The new chloride of silver-celloidin paper of Dr. Kurz, of Weringerode, differs so essentially from all other similar products, that even a first trial is surprising. I have made some experiments with a sample of this paper, and will give you the results herewith. The celloidin paper has a faintly glossy, almost mat surface, so that one might believe that it could give no prints to resemble the gloss of the albumen paper. This, however, is not the case. The finished prints have a gloss as fine as any Brilliant paper. The film possesses a strong resistance, is thin and hard, and the paper can be dried between blotting paper or by artificial heat. The treatment is extremely simple. The printing is done in the ordinary way, but so deep that the shadows show a bronze tone. The sensitiveness is very great; on a dark day I obtained under a medium dense negative good prints in thirty to forty-five minutes. Regarding the negatives, they should by no means be weak, as for aristotype paper, but just in the same condition as for albumen paper. A negative which gives satisfactory prints on albumen paper will do the same thing on celloidin. This is a great advantage, as all chloride of silver papers heretofore known printed more or less hard. The pictures come directly into the toning fixing bath from the printing frame. The bath is composed of the following:

Hyposulphite of soda	500 grams.
Ammonium sulphocyanide	55 "
Alum	15 "
Chloride of gold solution (1.200)	225 c.c.
Acetate of lead	20 grams.
Water	2000 c.c.

The fixing and toning lasts about eight minutes. The pictures assume a magnificent purple tone, while the high lights appear brilliantly white. The tone does not change much during drying, and the toning has to be continued until the desired color is obtained. Two colored prints are not obtained; the lightest and deepest shadows have exactly equal color. A little inconvenience is that the prints will not lie flat in the tone-fixing bath; they curl a little toward the film side, and a sufficient quantity of solution should therefore always be used. About the durability of the fixing bath I have no experience yet. I have found that still handsomer tones are obtained if less gold is applied. A fixing bath of the following composition seems to give the best results; the toning lasts somewhat longer (about ten to twelve minutes):

Hyposulphite of soda	250 grams.
Xmmonium sulphocyanide	20 "
Alum	10 "
Chloride of gold solution (1.200)	80 c.c.
Acetate of lead	5 grams.
Water	1000 c.c.

Many pictures can be toned at the same time. The whole manipulation is less delicate than with aristotype paper, the film appearing to be almost indestructible. In a dry state, however, it will break when bent sharply. The washing is undoubtedly much quicker than with chloride of silver gelatine. The pictures should be mounted when still in a moist condition. The simplicity of the treatment (only one bath), the handsome high lights and magnificent tone, its comparatively cheap price, and the soft, easily burnishable prints, make the chloride of silver celloidin paper a very recommendable article for practical photographers as well as for amateurs.—*Photographisches Wochenblatt.*

OUR EXTRA ILLUSTRATIONS.—The half-tone process reproductions of our entomological subjects in the present JOURNAL are the work of the Crosscup & West Engraving Company, 911 Filbert Street, Philadelphia. Mr. Fred. E. Ives, of this city, is the original inventor of this process. Our specimens show the value of the process for scientific illustrations, which are acknowledged to be the most difficult of all subjects to reproduce satisfactorily. For fidelity to the original we have rarely seen the plates equaled by any mechanical process.

BLUE PRINTS OF LANTERN SLIDES.—A well-known maker of lantern slides in this city, recognizing the fact that any one who has been compelled to make a selection of lantern slides from catalogues, without having the opportunity of seeing the stock of slides, has quickly recognized the fact that it was next to an impossibility to determine just what the character of the pictures were, the names given conveying only a faint indication of what they might be. To do away with this great annoyance, blue prints of all lecture sets published in his catalogue are furnished as fast as he is able to get them printed. These blue prints are on a sheet 6x8 inches, picture being 1¼ inches square. They are photographed from the negatives from which the lantern slides are made.

How great is the progress of mechanical photography, and the rapid strides lately made in the perfection of the various processes, becomes apparent by the following notice in a daily, viz.: Wood-engraving will be taught no more at Cooper Institute, as ex-Mayor Hewitt says that art has been destroyed by the " process " work, so it is no longer able to afford a living except to a genius. The pupils express great dissatisfaction with the decision.

"Is photography always truthful? One has but to inspect an advertisement which appears in many druggists' windows, setting forth certain claims pertaining to a preparation for producing luxuriant hair. In it we find a series of portraits of a lady said to be taken at periods of several weeks (?) apart in order to show the rapidity with which her tresses have grown; but we also find that in each she wears the same dress, in which the various folds and even creases are identical. Meantime her hair has *grown* a few feet in length." Thus writes a correspondent.—*Optical Journal.*

[That photography is truthful even in the cases quoted, is shown by the fact that it makes the fraud apparent to any but the superficial observer.]

THE people in Bordentown, N. J., lately were swindled by a stranger who represented himself to be a photographer, saying he would furnish cabinet photographs for a very low figure upon an advance payment of fifty cents on each order. He was to come the next day with his camera to make the pictures, and those who gave the stranger orders, together with the fifty cents, are still waiting for his return.

We have no pity for the victims of this swindler. If they had patronized their local photographers, as they should have done, they would not now bewail their loss. The only regret is that they get off so cheaply.

PHOTOGRAPHY is to be taught in most of the best schools in Japan, notably in the archæological, the foresty, and the military institutes.

A MAN uniformed as a soldier, gun and all, walking stolidly back and forth all day doing sentry duty on a Sixth Avenue roof, in New York, in full view of people passing on the elevated trains, is the latest development of the misdirected advertising genius of a photographer.

MR. JAMES NASMYTH, the eminent English mechanical engineer and inventor ot the steam-hammer, died in London, May 7th ult., aged eighty-two years. He was born in Edinburgh, the son of a distinguished artist. When a boy he made a small steam-engine for grinding his father's colors. In 1829 he became assistant to Mr. Maudsley in his private workshop in London. After Mr. Maudsley's death, he made himself a set of tools and began business, with a small capital, at Manchester. Besides the steam-hammer, he invented a safety-ladle for founderies, a ventilator for mines, a steam-engine for screw steamers, and a rolling-mill. He retired from business in 1857, and became an amateur astronomical observer, giving particular attention to the sun and the moon, and to astronomical photography. His monograph on the moon, prepared in conjunction with Dr. Carpenter, of Greenwich, is the most valuable English work on the subject.

IN *The Camera* (London), August, 1890, the Rev. T. Perkins, M.A., F.R.A.S., publishes an interesting and instructive article on stone henge, the most ancient specimen of architecture in England. The paper is embellished with two reproductions from negatives by the reverend writer, and is another illustration how photography assists in disseminating local historical knowledge.

THE much-heralded photograph in natural colors, which was to have appeared in one of our contemporaries in New York, did not appear in the August number of the journal as promised. In fact, it has failed to materialized. Whether the four-plate process refused to work is not stated. Perhaps the colors refused to respond to the wand of the photographic magician. However, in place of the chromo we are treated to an "artotype" of much artistic merit, a style of picture far preferable to a poor chromo.

DEVELOPING TRANSPARENCIES.—Captain Pizzighelli gives the following formula to develop transparencies:

A. Dissolve 39 grammes of citric acid in 35 c.c. of water, and neutralize with aqueous ammonia. Should too much ammonia be used, it must be removed with the aid of heat. Then add 26 grammes of citric acid, and the solution is diluted so as to make 270 c.c.

B. Solution of ferrous sulphate 1.3, slightly acidified with sulphuric acid, to prevent its oxidation.

C. Solution of chloride of soda, 1.30. To develop take

A	10 parts.
B	5 "
C	1 "

Chloride of soda is a powerful restrainer, and should be used with care.

Sulphate of iron, in a larger proportion than that indicated, retards development. By diluting the developer, we obtain prints that are soft and of less intensity. Gallic acid acts as an accelerator. It produces sepia tones. To the above solution we may add two and a half parts of a solution of gallic acid at one per cent. By this process we are certain to produce excellent transparencies.—*Revue Photographique.*

LITERARY AND BUSINESS NOTICES.

THE MODERN PRACTICE OF RETOUCHING NEGATIVES; Scovil & Adams Company, New York. No. 7 of the Scovil Photographic Series.—So great has been the demand for this practical work that it has been found necessary to reprint the edition, making the sixth edition. All the various details of retouching collodion negatives, positives, enlargements, landscapes, etc., are given in the various methods, American, German, and English. The book contains much useful information for the advanced amateur as well as the professional. The price—fifty cents—places it within the reach of all. It may be obtained at the publication office of this JOURNAL.

THE LOMB PRIZE ESSAY ON PRACTICAL, SANITARY, AND ECONOMIC COOKERY; published by the American Public Health Association.—This is a useful book of nearly two hundred pages, neatly bound in boards; it is adapted to persons of moderate and small means. It is edited by Mrs. Mary Hinman Abel, and abounds in practical household information, which will undoubtedly prove of great value to many of our professionals in localities where tintypes sell thirty-six for a quarter or cabinets at $1.00 per dozen.

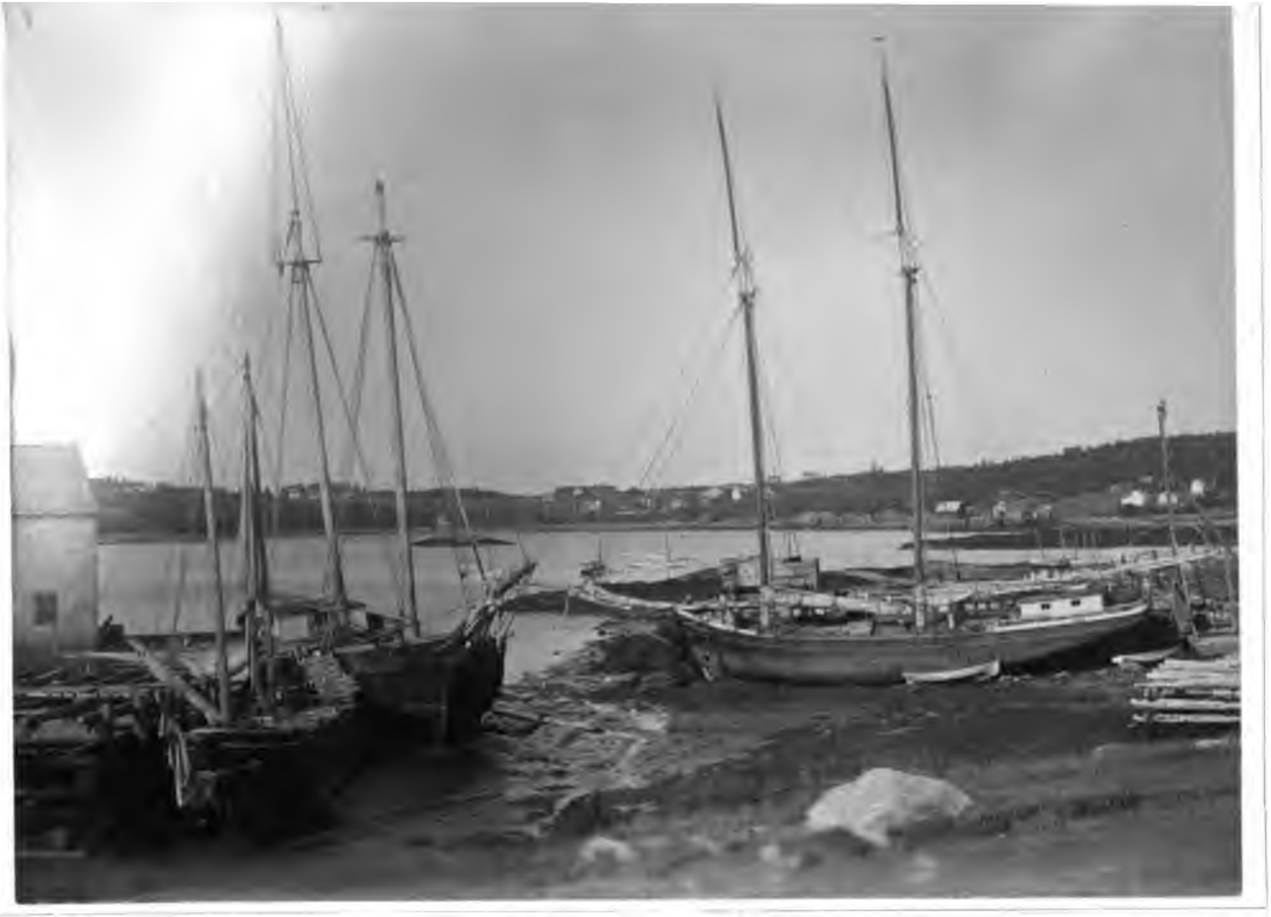
THE EASTMAN COMPANY favor us with a copy of the "Kodak Souvenir of Washington, D. C.," gotten up expressly for the members of the Eleventh Annual Convention. There are but four pages—showing views in Washington made with Kodaks: No. 1, No. 2, No. 3, No. 4, and No. 5 Folding Kodak. The paper used represents the three grades of Eastman's permanent bromide paper. The prints are reproductions made by the callotype process and are excellent. We will further say that if the Eastman Company will refer to our leading paper in the August JOURNAL, and give us results on their prepared paper equal to the pages of this souvenir, then the problem is solved and a long-felt want filled.

THE BAUSCH & LOMB OPTICAL CO., at the meeting of the American Association of Photographers, held at Washington last week, were represented by Adolph Lomb and W. Drescher. There were shown the Rapid Universal and Alvan G. Clark Lenses, with Iris Diaphragms, also special lenses for detective cameras, the new Model Diaphragm and Hoover Shutters, Prisms for Photo-Mechanical Processes, Camera Levels, Focusing and Retouching Glasses, besides a large frame wherein photographs of different sizes were exhibited, showing the capacity of the lenses with which the same were produced.

LECONS ELEMENTARIES DE CHEMIE PHOTOGRAPHIQUE (Elementary Lessons of Photographic Chemistry); by L. Mathet (Société Générale d'Editions, Paris, 1890.—A new dictionary of photographic chemistry, a volume of 726 pages, brim full of information. Its author, M. Mathet, is a first-class chemist, and keeps well abreast of the times. The work is exceedingly valuable to the photographer who is able to read the work, as it not only gives all of the chemical substances used in practical photography, but also the reasons why they are employed, how they are manufactured, and when purchased how they may be tested and impurities detected. M. Mathet is entitled to the thanks of all photographic students, to whom the book will prove a useful book of reference.

OUR respected friend, the watchman in the watch-tower of the *Beacon*, takes us to task for an error in giving credit for a quotation in our June JOURNAL. The matter is at best a small one, and if we remember rightly the fault lies not with us, as credit was given to the publication from which we clipped it. However, had we known to whom the credit properly belonged, we should have given his friend, the —— Austrian, his due. We thank our brother in the watch-tower for his vigilance and correction; at the same time we cannot help adding the caution "that he of the elevated position in the tower take heed lest he fall," and that while he discovers the infinitesimal mote in his brother's eye he loses sight of the stack of cord wood in his own.

"ECHOES FROM THE WAGON WHEELS," heard at a regimental reunion (Boston, 1880); a monograph containing three tales, by late members of Twelfth Mass. Vol., recalling army reminiscences.—This work, of which sixty copies only were printed for private circulation, is a chef d' ouvre of the photographic art. It is entirely the work of comrade James Beale, 719 Sansom St., Philadelphia, himself a veteran of the regiment. The sheets are printed on old Berkshire linen paper in eight tints, with Windsor & Newton's artist oil colors, viz., permanent blue, crimson lake, neutral tint, burnt umber, chrome yellow, burnt sienna, lampblack and flake white. The three tales are told by a quartermaster, a teamster, and train guard respectively. Many are the recollections recalled as we glance over the pages—our mind wanders back and scenes long past once more appear vividly before us. Mr. Beale deserves credit for the artistic execution of this specimen of typographic color work.



A BIT OF MT. DESERT COAST.

NEGATIVE BY XANTHUS SMITH.

PRINTED ON SHANGHAI ALBUMEN PAPER.

AMERICAN ACADEMY
OCT 22 1890
OF ARTS AND SCIENCES

AMERICAN
JOURNAL OF PHOTOGRAPHY.

Published by THOS. H. McCOLLIN & CO.

VOL. XI. PHILADELPHIA, OCTOBER, 1890. NO. 10

THOS. H. McCOLLIN, Managing Editor. J. F. SACHSE, Associate Editor.

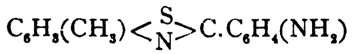
A NEW PHOTOGRAPHIC PRINTING PROCESS—"PRIMULINE."

AT the late meeting of the British Association for the Advancement of Science, at Leeds, the chief event, from a photographic point of view, was the paper read by Mr. A. G. Green before the Chemical Section (B), entitled, "The Action of Light Upon the Diazo Compounds of Primuline and Dehydrothiotoluidine: A Method of Photographic Dyeing and Printing." Wherein he made known a new process, in which primuline, a recently-discovered coal-tar dye, was used to produce photographic prints of an entirely new character. The following particulars we glean from the *Photographic* (London) *News*.

In his paper Mr. Green, speaking for Charles F. Cross, Edward J. Bevan and himself, states, viz.:

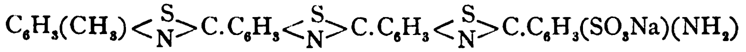
In the early part of 1887 one of us (Green) discovered that, by heating paratoluidine (2 mols.) with sulphur (4 to 5 atoms) at 200° to 300° C., a very complex amido base was obtained, which, on treatment with fuming sulphuric at a low temperature, was converted into a sulphonic acid, the alkaline salts of which were easily soluble in water, and had the peculiar property of dyeing cotton primrose yellow from an alkaline or neutral bath without the use of a mordant. Further, the amido compound thus fixed upon the fibre could be diazotised *in situ* by passing the material through a weak solution of nitrous acid, and, when diazotised, could be combined with various phenols and amines, thus producing a variety of different colors, which, being formed within the fibre, were all distinguished by great fastness to washing. The soluble amido sulphonic acid was named "primuline" by its discoverer, and has found a very extensive employment in cotton dyeing; the colors produced from it within the fibre were called "ingrain colors."

Although the chemical constitution of primuline base (of which primuline is the mono-sulphonic acid) has not yet been determined with certainty, there is no doubt that it is a condensed derivative of dehydrothiotoluidine, a body which always accompanies it in its formation, and that it differs from the latter in exactly the same way as dehydrothiotoluidine itself differs from paratoluidine. As there is scarcely any doubt that dehydrothiotoluidine has the formula—



$$C_6H_3(CH_3)\overset{S}{\underset{N}{<>}}C.C_6H_4(NH_2)$$

i.e., is an amido-benzenyl-amido-thiocresol, it follows that the formula of primuline, or rather of its chief constituent, is probably



$$C_6H_3(CH_3)\overset{S}{\underset{N}{<>}}C.C_6H_3\overset{S}{\underset{N}{<>}}C.C_6H_3\overset{S}{\underset{N}{<>}}C.C_6H_3(SO_3Na)(NH_2)$$

In a similar manner, by heating metaxylidine or pseudocumidine with sulphur, homologues of primuline are obtained, which, like primuline itself, dye cotton without a mordant, and can be diazotised and combined with phenols within the fibre.

It has long been observed by one of us (Green) that the diazo compound of primuline was very sensitive to the action of light, being readily decomposed thereby, and losing its property of combining with phenols and amines. Upon this fact we have now founded a photographic process, by means of which designs can be produced in fast colors upon cotton, silk, wool, linen, or other fabrics. It can also be applied to wool, xylonite, celluloid, paper, or to gelatine films upon glass, thus affording a very wide range of employment. The process, which is a very simple one, merely depends upon the fact that if a material containing diazotised primuline be exposed to light under a design, those parts which are acted upon by light will be decomposed, whilst the parts protected from the light will remain unaltered, and consequently, on subsequent development with a phenol or amine, will produce colors, whilst the decomposed portions will not. The details will, of course, depend somewhat upon the material to be treated. As an instance, we may take the production of a design upon cotton cloth, cotton velveteen, and so on. The material is first dyed with primuline from a hot bath containing common salt until the required depth is obtained. It is then washed and diazotised by being immersed for a quarter of a minute in a cold bath containing about ¼ per cent. of sodium nitrite, and strongly acidified with sulphuric or hydrochloric acid. The material is washed again, and exposed damp—or, if preferred, after having been dried in the dark—to the action of light beneath leaves, ferns, flowers, or other natural objects, or beneath glass or transparent paper upon which may be painted or printed any design which it is required to copy. Either the arc electric light or daylight may be employed; in the latter case, the time of exposure will, of course, vary with the intensity of the light,—under half a minute is required in bright sunshine, and nearly half an hour in very dark, cloudy weather. When the decomposition is complete, which may be readily ascertained by means of a test slip exposed simultaneously, the material is removed from the light, and either passed into the developing bath at once, or is kept in the dark until it is convenient to develop it. The developing bath consists of a weak solution (¼ to ½ per cent.) of a phenol or amine made suitably alkaline or acid, the phenol or amine employed depending upon the color in which it is required to produce the design, thus:

For *red*, an alkaline solution of β naphthol.
For *maroon*, an alkaline solution of β-naphthol-di-sulphonic acid.
For *yellow*, an alkaline solution of phenol.
For *orange*, an alkaline solution of resorcin.
For *brown*, a solution of phenylene diamine hydrochloride.
For *purple*, a solution of α-naphthylamine hydrochloride.

If it is required to produce the design in two or more colors, the respective developers, suitably thickened with starch, may be applied locally by means of a brush or pad. After development the material is thoroughly washed, and requires no further fixing.

Linen, silk, and wool are treated in exactly the same way. Paper for copying drawings, and other purposes, is coated on the surface with primuline by means of a brush or roller. For the production of gelatine films upon glass the primuline is incorporated with the gelatine before being applied to the glass.

In place of ordinary primuline the homologues already mentioned may be used. For silk and wool the primuline may be replaced by dehydrothiotoluidine-sulphonic acid, by means of which colorless backgrounds may be obtained.

Concerning the reaction which occurs when the diazo-primuline or the diazo-dehydrothiotoluidine is decomposed by light, we cannot at present say anything definite, except that the diazo group is completely destroyed, for on treatment with sodium hydrosulphite (true hyposulphite) it cannot be converted into the amido group (reforming primuline or dehydrothiotoluidine). The reaction may consist in a replacement of the N_2 group by OH or by H, or may be even more complex. Although we cannot affirm that this reaction to light is a property of the diazo-compounds of this group of bodies only, yet it is certain that they possess an extreme susceptibility to light far greater than that of other diazo-compounds, whilst at the same time they are far more stable to heat. It is thus possible that this property may depend in some way upon the sulphur which they contain.

Mr. Green also gave a demonstration of the process to the Section. An enameled iron basin contained about three pints of water kept nearly at boiling temperature by means of a Fletcher's gas-burner below, and into this he projected, without weighing, a few grains of primuline, a light yellow powder, and, aided by stirring with a glass rod, it quickly dissolved. He then took a piece of white cotton cloth, perhaps 12 by 10 inches in size, and pushed it below the surface of the liquid by means of the glass rod. In one or two minutes the cloth was dyed light yellow. Then it was lifted from the liquid by the rod, and thoroughly washed in water; the surplus water was next wrung out of the cloth by hand, and the damp cloth placed upon a white backing in the printing frame, beneath a translucent, flexible colored picture, such as used in windows in imitation of stained glass. When it is desired to obtain a print of a purple color the cloth, after the washing, is soaked in a mixture of a solution of nitrite of soda and acetic acid; this soaking somewhat deepens the yellow color. The operations so far occupied five or six minutes.

The printing frame and its contents were then exposed at a window for ten minutes to rather dull daylight; there was no sunshine. The print was then developed by immersion for less than a minute in the solution described; then it was washed in water, and the whole operation would have been finished, except that in this instance, in order to fix the purple color, which otherwise would have been liable to be acted upon by alkaline agents, it was passed through a bath of tartaric acid. The whole of the operations, from first to last, occupied about twenty minutes on a dull day; with sunshine but one minute's exposure would have been necessary, thereby reducing the total time to eleven minutes. The developer used in producing a purple color has an evil smell.

Next a contact print, by artificial light, was made in about five minutes upon a dry plate which had been coated with a solution of primuline in gelatine. The time of exposure was five minutes to the lime light in front of an ordinary optical lantern condenser.

The colors produced by this process are not gaudy, but of an "artistic" nature, resembling those which predominate upon Indian silks. As yet a white ground to the prints has not been obtained, but a light gray, approaching to white, has been produced. For many subjects this absence of white is no drawback, because the pictures look as if intentionally colored by hand; in fact, such power of producing colors in untouched photographs has never before been seen. One picture represented a classical head of large size against an artistic yellow background; the general result was excellent, and no one could have imagined a week ago that such a result could possibly have been produced by photography.

Numerous prints in various colors by this process were exhibited; some of them were on glass which had been coated with primuline dissolved in a solution of gelatine; others were upon paper, cloth, and various fabrics; most of them were of rather large size.

In relation to the action of the spectrum upon the new substance, Mr. Green stated that the decomposition is far more general over the whole spectrum than is the case with silver salts; although the action is greatest in the violet, it is fairly strong as far as the orange. He could not give a definite solution of the problem as to the nature of the chemical change produced by light, but could state that it is certain that nitrogen is set free; he thought it probable that some of the residue formed entered into the cellulose or gelatine vehicle; at all events, when no organic matter is present, the decomposition produced by light is relatively excessively slow. In gelatine the nitrogen eliminated is locked up for some time, certainly for a day, and when the exposed gelatine film is placed in water, bubbles of nitrogen are given off.

Those present at the reading of the paper displayed a lively interest in its contents and in the demonstration. Mr. John Spiller, whose remarks will be found in last Wednesday's *Times*, stated that Mr. Green had not alone been the discoverer of primuline, but of the second stage of its application to photographic purposes. Mr. Spiller farther stated that he himself had been working with primuline upon paper, and had found it to be quite as sensitive to light as ordinary chloride of silver; he had tried to get an image upon it in the camera, but had obtained no result in ten minutes. The coloring matter in the finished print—say, the red color—he believed to be wonderfully permanent; it was not affected by light, by acid, by alkali, nor by a variety of metallic salts, but was attacked by hydro-sulphides. The new process, he thought, was likely to run the blue process very hard for engineers' drawings.

Among those present at the meeting was Professor Rowlands, of the United States, who has been so successful in the production of diffraction gratings. He asked whether the new substance had been tried for the orthochromatizing of ordinary gelatino-bromide plates. Mr. Bothamley replied that it had never been so tried, but that only ten minutes previously Mr. Green had given him some primuline for the purpose.

In the course of this interesting meeting, Professor Thorpe, who presided, remarked that it was a curious fact that just thirty-two years ago, when the British Association was previously at Leeds, the inventor of the blue process, Sir John Herschel, occupied the chair in which he, Professor Thorpe, had just been listening to the description of a new process which Mr. Spiller had said was likely to "run the blue process hard."

So far as can be judged at present, the "running of the blue process hard" is one of the smallest things the new process is likely to do, for it gives a power never before seen of photographically producing colored results, some of which may be artistically harmonious, and others the reverse. Ere a few months have passed away the merits and demerits of the primuline process will have been largely investigated by practical photographers, and it seems probable that some of the classes of pictures it is capable of producing will arrest the attention of the general public to an unusual extent.

BLITZ PULVER vs. FLASH LAMP.

AS the season of the year has now arrived when flash-light pictures will be again in order, the following account will be read with interest by both amateur and professional photographer, who may have occasion to use it. As will be seen "Blitz pulver" maintains its superiority over all the so-called magnesium flash-lamps.

Prof. Eder, of Vienna, has lately instituted a series of experiments, seeking to establish the relative rapidity of the various flash-compounds, as well as the different apparatus, which have been brought into use for igniting the metallic powder. For this purpose he constructed an ingenious apparatus. This consisted of a toothed wooden wheel, similar to the scape wheel of a clock; on the periphery a small silvered glass globe was secured, such as are used to decorate Christmas trees. To this wheel a pendulum is attached, so that when set in motion the wheel moves similarly to the escapement of a clock; each swing of the pendulum being equal to one second of time. The silvered globe was photographed by the various compounds and apparatus, the result being the arc described by the ball. The length of which naturally depends upon the duration of the source of illumination, the following results were obtained:

Duration of Flash.

1. Blitz pulver (containing 40 parts pure magnesium), charges of about 15 grains, ignited by means of a taper, ... $\frac{1}{20}$ to $\frac{1}{30}$ sec.
2. Pure magnesium powder, blown rapidly into a spirit-flame with aid of a glass tube; charge of 7 grains pure magnesium, ... $\frac{1}{8}$ second.
3. Pure magnesium powder ignited in a "Schirm" lamp; charge 4 grains magnesum forced rapidly into the axial of the flame by a slap on the air-bulb with both hands, ... $\frac{1}{7}$ second.
4. Pure magnesium powder, ignited in a "Von Loer" apparatus: this is a kind of double blast arrangement, by which the magnesium is forced into or through the flame; the charge was 8 grains, and registered, ... $\frac{1}{4}$ second.
5. Pure magnesium powder burnt by Dr. Hesekiel's method: about 4 grains were used for a charge, the flash lasting . . . . $\frac{1}{13}$ second.

This method is nothing more than throwing the powder into or down the chimney of an ordinary kerosene lamp,—an experiment which the translator is free to acknowledge he has not had the courage to try.

As will be seen by above comparison the Blitz pulver is far in advance of the much vaunted flash-lamps, Blitz pulver being the only method by which great intensity, actinic action, and absolutely instantaneous effects may be obtained. One of the most astonishing facts brought out by these experiments is the one showing that Dr. Hesekiel's simple method distances, by great odds, the most elaborate and complicated apparatus devised to produce actinic illumination for photographic purposes by igniting plain magnesium powder.

J. F. S.

TO SUTTON'S ISLAND WITH A CAMERA.

TOOT, toot, too-oo-oot, a shrill whistle blows. It is the *Ralph Ross* announcing her presence. She is a cute little steamer that we have engaged to take us on an excursion to Sutton's Island. She hauls up to the slip, and we are soon comfortably stowed on board of her. The captain deftly shoves her off, sets the miniature but active engine in motion, and seizing the steering-wheel sends us cutting swiftly through the clear blue sea. Shortly we approach the United States school-ship *St. Mary*, lying at anchor in the roadstead. The weather having been rainy previously, she has all her canvas loosed to dry in the glowing morning sunshine. She presents a beautiful picture, and one rarely to be seen nowadays. She is the glorious old sloop-of-war in all the completeness of half a century ago; and with her great black sides high above the water, far-projecting channels, and gaping port-holes, from which protrude the old-fashioned cannon, square stern with cabin windows, bluff bow with all the quaint carvings of the old billet-head, great overhanging davits and swinging booms, and towering above all, her lofty masts and wide-reaching yards, with picturesquely-festooned sails, she forms a picture that we *must* secure; so as we approach we lay anxiously hoid of our camera, set the shutter, and draw the slide. Our captain, perceiving our intention, asks whether he shall stop; we answer no, and catching our subject in the finder wait until the exact moment; a slight click is heard, we have her,—this time on the bow. It is but a moment's work to re-adjust our holder and set the shutter; now we find her once more; click, we have her again,—a stern view; and soon she vanishes to a mere speck, and we bend our attention upon Sutton's Island, which we are rapidly approaching.

Sutton's Island is one of the group of islands which lie off the southerly side of Mount Desert, and is remarkable on account of its precipitate, rocky shore, the rest of the group being low and shelving to the water, so as not to present anything of prominent scenic interest. We approach the southerly side, which is the lowest, and make our landing,—a matter not just the easiest of accomplishment, because the tide is low, and the crazy old wharf, having lost one the planks which forms its open stairs, has a gap which can only be overcome by aid from a slightly-projecting cleat and a liberal use of the arms on a rude rail above. All is wet and slippery, and the sea is flopping and swirling beneath; but with great care and the aid of the captain we get our party, consisting of wife, maid, and two baby boys, safely on shore.

On gathering together our traps and looking about us, we find ourselves surrounded by fine, picturesque subjects. To our right, before we have yet left the wharf, we see a picture in a gray, weathered old shed or boat-house and a fine group of rocks. We do not wait to set up our tripod, but secure it at once by "snap-shot." Then advancing a few yards to the left, we come upon a sloop hauled up for repairs, backed by an old shop and surrounded by lobster pots, a dory, a sail hung over some barrels, and a number of other picturesque accompaniments,—all that the most enthusiastic lover of the unsophisticated could wish. Here again we secure two views, one from either side. We would gladly have had more, but as we are not supplied with roll-holder and films we must use our plates sparingly.

We now wend our way around the westerly end of the island; sometimes along stony beach, at others climbing with difficulty over the jagged, slippery, many-colored rocks, here festooned with masses of sea-weed, and there coated with innumerable barnacles, now overhanging us, now jutting out into the sea; and then along thin bits of pasture-land bordered by rude stone walls, till we find ourselves on the summit of the northernmost shore, amongst stunted pines, hoary with lichens and long, pendant gray moss, and looking from a series of rocky precipices, some sixty to eighty feet above the sea, over the sound to the magnificent mountain panorama which the island of Mount Desert presents from this point. The day is serene, and we are utterly charmed. Our delight is only tempered by the feeling of regret we have that a few near and nature-loving friends are not with us to share our enjoyment. To those who have not traveled amongst fine scenery and drunk in such enchanting scenes, it is utter folly to attempt to describe the exquisite charm of a view from an eminence overlooking sea and mountains, with rocky foreground, such as we have in this instance, and we may find even in greater perfection upon the west coast of Scotland, where all is upon a grander scale, and the mountain torrents and ruined castles add greatly to the interest. Added to the varied and grandly picturesque forms in such scenes, we have the exquisite coloring, possessing, as it does, a force and brilliancy which cannot be approached in painting, let alone attempted in description. The delicate azure of the mountains, the intense blue of the sea, and the glowing reds, oranges, and browns of the rocks about us, contrasted and heightened by small coverings here and there of the most brilliant green herbage,—what a picture! Alas! we cannot fix it. We must enjoy it when presented to us, and bear what we can of it in recollection, using it to fill out the descriptions we may afterwards read of fairy scenes amongst far-off ocean islands. Whilst we pursue our work with camera, wife goes to interview the owner of this tract which commands so fine a prospect, and renew an acquaintance made a year previously with the good lady, who, we are sorry to say, has since become a widow. The family have long been residents here, and have gained a livelihood, as do most in in this region, partly from the scanty soil and partly as "toilers of the sea." We had hoped to make a purchase, but find that we have too long delayed our project. A land company had been upon the ground last winter and *boomed* it. What we might have purchased a year ago for four hundred dollars per acre we are now asked double that amount for. We are enthusiastic over the spot, but eight hundred dollars per acre for rocks and precipices is beyond our sense of prudence. So we sigh, and must wait for a decline.

Pursuing our search for views, in making a detour to avoid a too dense wood on an overhanging crag, we come suddenly upon three or four lonely graves. (It has been the custom in this region for families to bury on their property.) They are just at the border of a tract of pine wood, where it begins to open out a little. The trees are dwarfed, old, and moss-grown,—weird-looking; the ground stony; not a blade of grass grows on the heaped stony gravel which forms the mound over each grave. There are neat marble head-and foot-stones, with the usual inscriptions upon the former. From one I learn that the grave contains the remains of a young wife, buried in 1856, aged sixteen. Entirely alone, I paused, impressed by my sudden happening upon this lonely burying-place, and entered into a reverie upon the strangeness of the chances that befall human existence. Who could not have done so? There lay the remains of one, doubtless in life blooming in health and youthful beauty, cut off at the instant of commencement of the duties of wife and mother. More than three score and ten years of the joys and sorrows, fears and hopes, of a long life blotted out at its beginning. For thirty-four years has that lonely grave existed, unchanged by summer sunshine and winter ice and storm. What events have transpired during that time! What great wars! First that of France and Austria with its bloody Solfarinos and Magentas, then our own long and bitter strife, and following that the Franco-Prussian, with the overthrow of a flourishing empire. How many mothers' hearts have been wrung! What strange events have transpired ! Great earthquakes, great fires, great floods, and a thousand other matters to stir the human soul. Quietly through it all has slept in that lonely grave, on this little island, those remains. Yet peaceful as it seems, we all struggle to remain in the strife.

Awakening from the sad train of thought into which we have been thrown by this unexpected scene, we clamber down to the base of some perpendicular cliffs, and pursue our work with camera in a grand confusion of rocks; but now we encounter some photographic mishaps. Our subject is nearly entirely in shadow, and so dark in local tone that we must make a time exposure. Having no footing for the tripod, we attempt a view by holding our camera as firmly as we can upon a jagged rock and using the time working of the shutter; but alas! the shutter sticks when half-closed, and the plate is spoiled, and the next attempt fares no better; for having incautiously drawn the slide before setting the shutter, the latter from some unaccountable reason, exposes the plate before we have pointed the camera at the intended subject. But in justice to the maker of our excellent outfit we must say that we have ourselves only to blame. We were too busy to make ourselves familiar with its peculiarities before setting off upon our journey.

Having expended our supply of plates, and the time coming around for our departure, we get our little party together at the landing to await the arrival of our steamer. After a while we think we see her, the merest speck in the distance. But we are not sure. We watch and wait, in the meantime making notes upon the exquisite coloring of the scene about us. The speck grows and grows. It is the *Ralph Ross*. But if the conditions of our landing were not altogether as perfect as we might have liked, those of our departure promise even less favorably. Any one unacquainted wlth the enormous tides of this locality, would not dream of the importance which they assume in the daily routine of 'longshore business. The watching and waiting for favorable conditions of wind and tide in rowing and sailing cause much to do with both sea-farers and pleasure-seekers. Boats, at the same place, are afloat one part of the day, and a mile or two from the water at another.

During our sojourn upon the island, the tide has so far receded that the bottom plank of the rickety old steps which we made use of in the morning, is now some ten feet above the water. So as the steamer approaches, we find that it will be necessary to go out to her in a small boat. In addition to this a strong southwest breeze has sprung up, making this the rough side of the island. However, by good management we succeed in getting on board safe and dry. But now the captain of the little bark is anxious to get an offing. It is a question whether he will not go upon the rocks before sufficient headway is got. A full head of steam is up, the engine starts, and we just barely manage to draw off. But we have not proceeded a mile when the motion of the engine begins to die out. We are tossing and pitching about in the little sea. The captain explains that water has become mixed with the oi which furnishes the heat to our boiler; but a supply of fresh oil does not seem to remedy the difficulty. So now he says that a dead stop must be made for an examination. We eye anxiously the rocky shore, not very far from us,—the dreaded "lee shore" of nautical phraseology,—and wonder what our chances will be. Fortunately, the vessel being low, we find we do not drift very rapidly; and the investigation bringing forth a stopped-up tube, which is soon cleared, we resume our voyage, in twenty minutes or so, at a rate of speed which would do credit to some of "Uncle Sam's" new cruisers. We feel now that we have had just enough of adventure to give spice to our trip, and land at our hotel in good spirits and with good appetites, for you will perceive that we have entirely omitted the usual lunch-basket accompaniments of such excursions. XANTHUS SMITH.

"AT HOME" PORTRAITS AND GROUPS.*

MR. HARRISON, who is so well known as a skillful and practical operator, and is not to be confounded with a gentleman of the same name and initials who is associated with the literary side of the *Photographic Review*, says:

There are many difficulties in this work which do not present themselves in the ordinary glass room or studio. I need scarcely say that one of the greatest is the scarcity of light, and not only the scarcity, but also the directness with which it enters the apartment, coming generally from one or two small windows. If, in order to get sufficient light, we find it necessary to place the sitter near the window, then the effect is hard in the extreme: shadows black as ink, with never a bit of detail visible. It is well to place the sitter back if there be room, so that the light enters the apartment in front of the face, thus modifying the contrasts a little. The windows are generally found profusely draped with curtains, often of a thick material, admitting little or no light. Even when they are of lace, it is quite common to find them so deeply dyed with saffron that the light which does struggle through possesses little actinic power. By all means have them pinned well back to the sides of the window. Our patroness may demur when she sees what we are about, but if we explain the necessity of the proceeding, and give her the assurance that we will exercise great care in our preparations, she will soon be won over.

Having now a strong light and dark shadows, we must resort to reflectors; and for this purpose I have found nothing better than an ordinary bed-sheet.

This should be very carefully placed not too far back, so that the reflected light as well as the direct may come pretty well from the front.

A portable stand for supporting the reflector may easily be made out of few feet of round deal about an inch in diameter, cut into suitable lengths, and joined by means of ferrules as used for fishing-rods.

The end supports should appear like the letter V inverted, with a rod of the same material along the top, either end of which rests on these end supports. The sheet can be thrown over this stand in the same fashion as the washer-woman has previously placed it on the clothes-line to dry. In fact, our reflector-stand is little more than a portable clothes-horse; yet it will be found of great service. If we are not supplied with some such article, we often experience a difficulty in attaching the corners of the sheet in a suitable position. Of course this arrangement can be moved to any part of the room when required. A similar contrivance is useful for placing a plain background when vignettes are required, the wall-paper often being unsuitable for that purpose.

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* From Bolas' *Photographic Annual* for 1890.

The reflector-sheet should be of ample size, so that it may be spread out on the floor, as well as placed upright on the stand.

Where the window is very small and the general tone of the room dark, additional light may be gained by placing a large reflector outside the window. We have all noticed the effect in our rooms, when the ground and surrounding buildings have been covered with a layer of snow. How it fills the apartment with light! In a lesser degree we may gain the same effect by the use of an outside reflector.

Many exceedingly pretty effects in lighting are to be obtained in an ordinary drawing-room.

Amongst others I would mention specially the kind of picture known amongst photographers as the Rembrandt. When light and shade are correctly balanced, this is a most pleasing and artistic style of photograph, and one in great demand.

It is more especially suited for studies of the head and bust than for three-quarters or full-length portraits, except when our sitter is attired in white; then the details of the drapery are sometimes more easily rendered by the figure being placed in shadow.

In order to produce a successful Rembrandt, it is of the first importance that we pay careful attention to the matter of lighting, that we may have a correct proportion of light and shade. If the light be strong and direct, then we must have much reflected light; if weak or more diffused, a lesser amount of reflection will suffice. In all cases we ought to avoid reflected light being used in such a manner that it can be detected in the resulting picture as such. It is desirable that the reflecting sheet be not placed too near the face of the sitter, and that it be brought fairly well to the front. The operator will do well to make a final inspection and overhauling of the lighting previous to exposing the plate, in order that any defects, which on a close inspection are discernible, may be rectified, such as false lights reflected in the eyes, heavy shadows caused by prominence of the nose, etc.

When exposing on such a picture, the great amount of shadow ought to be taken into consideration, and a due allowance made in the length of exposure. The two most common causes of failure in Rembrandts are violent contrasts of light and shade, and under-exposure. For home work, the one has to be overcome by a judicious use of reflectors; and the other by an exposure, the duration of which our experience and judgment must determine.

It is desirable to be provided with a vignette background, the wall-paper frequently being of so conspicuous design as to be altogether unavailable for the purpose. Even when the paper is quite plain there are sure to be shadows on it near the window, which make vignetting a difficulty. In choosing a background, select the lightest you can find, remembering that the weaker light of the drawing-room requires a lighter background than is necessary for the studio.

Let the roller be attached to the top of background, with a cord for hanging, like a map or picture.

I find it more convenient to dispense with the rod or lath at the bottom, as it is so constantly in the way.

By providing ourselves with an extra stand, as described last week, we have the choice of two methods of hanging the background. Sometimes the stand will be useless, on account of the limited space behind the sitters; and at other times it will be desirable to use it: as, for instance, when the background is required away from the wall.

Never attempt this kind of work with a view lens when you are the possessor of a portrait lens. The latter is far and away the better. When we take into consideration the small amount of light with which we have to work, the frequent demand for the photographing of children "at home," and the necessarily close proximity of the sitter to the background, and other articles more or less obtrusive, we shall readily see that a view lens is not suited for the purpose.

When photographing a full-length portrait or group, the background is often quite unobtrusive if rendered by a portrait lens; but if a view lens is used it is glaringly objectionable. The same applies to picture-frames, vases, curtains, etc.

With regard to accessories, the drawing-room usually abounds with them, and I have never experienced any difficulty in this direction. Flowers, grasses, and other articles useful in the making up of pictures are often more abundant here than in the average studio. With fresh accessories and home-like surroundings, new and natural poses suggest themselves; and the work, as far as posing and picture-making is concerned, is a delight. If we are photographing children, the children know that they are at home; and the freedom of speech and action allowed at home are difficulties far less than the inquisitive conduct of the older, and the half-terrified condition of the younger, members when visiting the strange studio.

To insure success, be provided with a quick-acting portrait lens and plates ot the greatest rapidity (combined, of course, with the other qualities which contribute to a good plate); then the difficulties are half overcome.

A plate which gives a full round image, with abundant detail in the shadows, without being unduly forced, is the class of plate to be used for the work.

In making the exposure, the operator should not forget to take into consideration the color of the wall-paper, carpets, hangings, etc. When there is a fair amount of light in the room it is often robbed of much of its actinic power by the yellow or red tone of the room, and is quite misleading to the inexperienced.

Under exposure, being the most common fault in photographs taken under these conditions, ought to be studiously avoided, hence I would again urge that every available assistance to rapidity be made use of.

Perhaps groups are the most trying subjects we met with. The inequality of the light is a cause of great trouble. In a group of eight or nine persons those farthest from the source of light are but dimly lighted, and that end of the plate will require very much more exposure than the opposite. A sheet placed on the carpet near them, in addition to the side reflection, will somewhat assist to equalize matters; and if the cap of the lens be taken off and replaced in such a manner as to give the shorter exposure to the side nearer the window, the difficulty is still further reduced. The rest must be done in development and after-treatment of the negative. Personally, I like a slow development, and think my readers will grant the desirability of its adoption for this class of work.

Large groups ought not to be attempted indoors, unless the room be exceptionally large and well-lighted. If the apartment be but badly lighted, it is preferable to photograph the group out of doors, or at the studio.

Parlor portraiture is suitable for single figures and small groups, but when a group numbering more than seven or eight individuals is required to be photographed, not only is the lighting a difficulty, but trouble is also occasioned by the limited space available between sitters and camera.

It is well to have a short focus lens by us; it will often help us over a difficulty otherwise insurmountable.

I well remember the trouble I once experienced in photographing a group of seven or eight persons and a dog in a very moderately-lighted drawing-room, being supplied only with a rectilinear lens.

Fortunately the room was long, so I had no difficulty in getting well away from my subjects; but the length of exposure necessary and the restlessness of my canine sitter combined to make the task anything but an easy one.

As I have previously remarked, the time of exposure in drawing-room portraiture is very prolonged. Due consideration should be given to this fact when posing, more especially with children, and positions chosen in which the temptation to move is reduced to a minimum. In grouping children, for instance, it is often advisable to place the heads together so that one forms a slight support for the other. Sitting positions, for the same reason, are usually more successful than standing; in fact, experience gained in the bygone days of slow plates and long exposures will be found of great service in selecting positions in which it is easy to keep still. This is a matter which, in these times of instantaneous photography, is to a great extent lost sight of.

To return to the subject of apparatus, I would advise my readers to equip themselves as lightly as possible. It is most fatiguing to be compelled to carry a heavy head-rest and studio camera-stand, in addition to the other indispensable apparatus, up the quantity of steps one sometimes has to ascend.

The studio camera-stand is altogether unnecessary. The ordinary tripod answers the purpose quite as well if corks be placed on the spikes in order to protect the carpet.

I would recommend a tripod, the height of which may be regulated at will by the well-known sliding arrangement. The head-rest should be as light as is compatible with stability. A good stock of dark slides is very convenient, but provision should also be made for the changing of plates.

The use of a room, which can be temporarily darkened, is generally placed at the disposal of the photographer; but it is well to be provided with some form of changing box or bag, many of which are in the market.

Many opportunities of doing business will present themselves in connection with evening parties, masquerade balls, bazaars, exhibitions, etc., whereby, if the operator can work successfully by artificial light, he may increase business during the winter months.

The demand for night photography is very great, and there opens up before us almost unlimited scope for good work in this direction.

It must remain for the enterprising reader to use whatever form of artificial light he chooses. It is not my intention to enter more fully into that subject in this paper.

I have now tried to bring before my readers some of the advantages and difficulties of drawing-room portraiture, and have recommended the methods of making the most of three advantages, and overcoming the difficulties, being the while guided by my own experience.

Perhaps some of my remarks will not be found to be in accordance with the views held by many photographers. We all know that each operator has his own pet methods of working, and some there are who are very conservative in these matters; yet if any, after wading through my remarks and observations on this subject, obtain any fresh views which prove of after service to them, I shall consider myself amply repaid for any effort which I have made.

W. H. HARRISON.

THE USE OF THE CAMERA AND PHONOGRAPH IN THE STUDY OF ETHNOLOGY.

HOW the various inventions of modern times vie with one another as to which shall prove of the greatest service to the scientific world in matters of research and investigation, as well as permanently recording the results, and how quickly these different discoveries are adapted to the various branches of the sciences, becomes more apparent every day. One of the latest schemes has been to supplement the camera with the phonograph in the field of ethnology. Where the first with its sensitive film portrays the features and depicts the various domestic scenes and utensils, the latter is now called into requisition to record for time to come the speech, songs, and sayings of such aboriginal races as are now rapidly losing their original characteristics through their contact with the European and civilized races.

Such an effort is at present being made with reference to the American Indians, *i.e.*, such tribes which still remain in approximately the same condition that they were when first visited by white men. Although it is almost impossible, at the present time, to find such tribes within the confines of the United States, there are still a few which have been very little changed; we allude to the Pueblo Indians, who still possess many interesting features of great antiquity. Of all the Pueblos, except possibly the the Moquis, the Zuñians, or A'sheewee as they are called in their own tongue, have been least changed from their original condition by contact with the Europeans. Living at a distance from the railroad, inhabiting isolated regions dlfficult of access, these people have preserved the ancestral traditions and customs in their primitive form. In many ways they offer an unparalelled opportunity for study of the religious and secular celebrations of the Pueblo Indians, but slightly modified from the olden time. The result of this attempt to place on record the features, customs, songs, ritual, and prayers of this curious aboriginal race is embodied in the following interesting communication from J. Walter Fewkes to the *American Naturalist* for July:

A previous visit to Zuñi, in the summer of 1889, had inspired in me a wish to attempt to record on the cylinders of the phonograph the songs, rituals, and prayers used by these people, especially in those most immutable of all observances, sacred ceremonials. I was particularly anxious to record the songs connected with the celebration of the mid-summer dances, which occur at or near the summer solstice. By the help of Mrs. Hemenway, of Boston, it was possible for me, in the interest of the

Hemenway Expedition, to visit Zuñi Pueblo at this time, and I have been fortunate enough to take on phonograph, from the lips of the Zuñians, a series of records illustrating the songs used in their sacred and secular observances. An extended paper, with illustrations of the dances, has been prepared for publication, and will be printed as soon as the music can be written out by an an expert from the cylinders of the phonograph. Although I prefer not to publish my final contribution until the illustrations are prepared from my photographs, a brief notice of some of the phonographic records which I have may not be without interest.

One of the most interesting songs sung at this dance, which is called the Kea' kok' shi or good dance, is that of the Kō kō. This song I took directly from one of the participants in the dance. I have reason to believe that this song is improvised each year, as the music this summer is quite different from that of a year ago. I was told by the Zuñians before the dance that they did not know what the song was to be, and that no one knew except the participants. There is, however, a general resemblance, yet still great variety, in all these "Kō kō songs," and I have indelibly taken on phonographic cylinders as many as possible for a comparative study at a more favorable opportunity.

Four days before the dance, on the afternoon before the departure of a delegation of priests to offer feather plumes at the "Sacred Lake," Tay jay po une, a ceremony takes place in the Pueblo, which may be called the "Ducking of the Clowns." This observance is known to the Dumăchimche, from the words of the song by the Ko ye a mashi, or mudhead clowns, on whom, in the course of the celebration, water is poured from the house-tops by the squaws. This song has internal evidence of antiquity, and I am told by the Indians that both song and ceremony are very ancient. Although a musical critic might not find in it great beauty, as an undoubted specimen of ancient aboriginal music it is very interesting. I shall comment on the meaning of the Dumăchimche in another place, when the ceremony will be described at length.

While my observations have been particularly directed to the linguistic features of the solstitial dances in summer, I have not wholly neglected the great wealth of other material all about me for linguistic study by means of the phonograph.

The well-known celebration called the Sha' la 'ko, at which the Zuñi house is consecrated, is the occasion of an elaborate ceremonial, in which figures a song or chant and a prayer, said to be very ancient. I have never witnessed the celebration of the Sha' la 'ko, but have been able to obtain the chant and prayer from one of the natives. This capture had to be made secretly, unknown to the other Indians. It was found necessary to take it late at night, in a room darkened with blankets at the windows to prevent suspicion, and sentinels stationed about the house to warn us of the approach of intruders. On those conditions only was it possible to get the Indian to chant the Sha' la 'ko on the phonograph. It is now, however, permanently recorded in the wax, and can be reproduced at pleasure, or, what is of more importance to philological study, can be written out and studied at leisure, under better conditions. I am told that it is next to impossible to get any of the Zuñians to sing the Sha' la 'ko out of season, and as the celebration regularly comes in November, a record of it in July is a fortunate acquisition. Certain of their winter songs they will not sing in summer, because to do it prevents the corn from growing. I do not know whether or not the chant of the Sha' la 'ko is one of these.

The phonographic record to which I look forward with the greatest hope is that of a Zuñi ritual, to which writers have from time to time referred. This ritual, which has been designated by the dignified title of a Zuñi Epic, is of considerable length, and is regarded with great reverence by the Zuñi people themselves. Haluta, the reciter of it at the time of its delivery, is said to be regarded as a most sacred personage; and when, prior to its recital, he is brought into the Pueblo, his feet, it is said, are not allowed to touch the ground. It is thought probable that a phonographic record of the ritual would be an addition to our knowledge of Zuñian mythology. The extracts from this ritual, which are freely translated from memory by Mr. Cushing in his interesting paper on Zuñi Fetishes, indicate that it is a valuable account of the mythological history of the race. He had not at his command an instrument to record the words of those portions of the "Kaklan" which he heard, and consequently was unable to give it in the original diction in which it is given before the members of certain priesthoods, to whom alone it is recited. He says that many of the words are in old Zuñi, not understood at present. The records which I have are good enough to enable me to write out the ritual, which, however, at the present state of my knowledge of the language, I am unable to translate. With the help of those who understand the language, as well as English, I have no fear but that in my final paper I can publish a translation of the ritual as told by Haluta on the cylinder of the phonograph.

I have, after several failures, been able to get this recital on the phonograph, where it fills a long series of cylinders. Before the value of this record, both linguistic and mythological, can be appreciated, it must be carefully written out and studied. This will take a long time, as many of the words are old Zuñian, and the task of extracting the meaning from the ritual will be found to be a difficult one. A permanent preservation of it is, however, a step in the interpretation, and when once indelibly fixed on phonographic cylinders its true character and significance can be investigated.

One of the most interesting of the Zuñi songs is that of the hunters. This song has many beautiful parts in it, and outside of its interest in the study of the customs of the hunters, is well worth preserving as a specimen of aboriginal music. I have thought it worthy of a place in my collection, and with it I have also preserved certain of the prayers to the fetishes used in the hunt, some of which have been written out and translated by Mr. Cushing. The harvest which a study of the hunting customs of the Zuñians offers is great; and the collection of data bearing on this subject is highly important, since the decrease in game may go on, as New Mexico is more and more thickly settled, and the hunting ceremonials be more or less modified as time goes on.

I have not encountered, in my experience in taking records with the phonograph, any great difficulties among the Zuñians. Their real impressions of the instrument it is very difficult to divine. One of them asked if a person was hidden in the machine, and another thought the phonograph bewitched.

Indians are so stolid that it is very difficult to discover what impression such a novel instrument as the phonograph makes. They are so accustomed to incomprehensible machines used by Americans, that this last triumph of inventive genius affects them no more than many others which might be mentioned. Certainly they are not afraid of it, and there is no difficulty in getting them to talk into the instrument.

The great difficulty in getting them to repeat their sacred songs and prayers does not come so much from their fear of the instrument, as of secularizing what is sacred to them.

They will readily respond with any of their secular songs, or with those sung in public, but those belonging to the secret ceremonials of the Estufa they will not divulge.

REPRODUCTION OF LIGHT BY ELECTRICITY.

ONE of the latest scientific discoveries of this wonderful age is said to be an apparatus which bears the same relation to the eye that the phonograph does to the ear. We reproduce the article in full without comment:

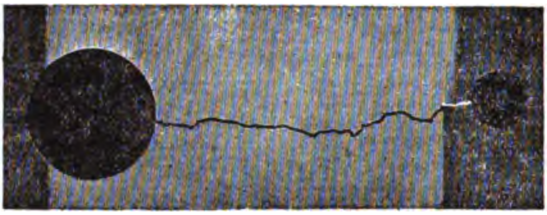
It is said to be possible that modern electricians may succeed in constructing a device that will do for the sense of sight what the telephone does for the sense of hearing, but the prospects for such an achievement are not particularly bright. The possibility has been demonstrated, experimentally, but the practical difficulties in the way of carrying out the idea are very great. It is well known that certain salts of copper and silver, for example, generate electric currents when exposed to the light; and, conversely, electric currents will produce in these salts changes corresponding to those made by light. If a strongly illuminated object is placed in front of a transmitter covered with such a salt electrical currents will be generated which will vary in intensity according to the intensity of the light falling on different parts of the surface. If, now, these various currents were carried to a receiver similar to the transmitter they would produce on its surface changes like those wrought by light on the surface of the transmitter. According to the *Electrical World* an apparatus has been proposed based upon the property peculiar to selenium, that its electrical resistance changes with the intensity of light. For a transmitter the selenium cells are arrranged in squares like a checker-board. The greater the number the more efficient would the apparatus be. Each of these is connected with an electro-magnet in the receiver. The latter is composed of a mirror constructed of thin strips of steel, to each of which several of the electro-magnets are attached. A strongly illuminated body being placed in front of the selenium transmitter the electrical resistance of the various cells varies in accordance with the intensity of the light, as in the case of the salts of copper and silver. The various currents affect electro-magnets in different degrees, the result being that the strips of steel are bent irregularly, turning the mirror into an aggregation of surfaces, very slightly warped, which will throw an image on a screen. The main difficulty in the way of the realization of such an idea as seeing by electricity lies in the necessary complexity of an apparatus which shall enable innumerable points in the transmitters and receivers to be actuated simultaneously in perfect independence, and also in perfect correspondence, but it is quite possible that further experiment will bring into actual use what might be something more than a mere plaything. In defensive war a telescope of indefinite length would certainly be of value. With buried wires and concealed visors a general might watch his adversary's movements at times when this would mean victory instead of defeat.—*Iron.*

PHOTOGRAPHING THE ELECTRIC SPARK.

AT a recent meeting of the London Photographic Society Sir Henry Trueman Wood read a paper on photographing the electric spark. He referred to the instances in photographs in which bright flashes of lightning were represented by dark lines in the position. These dark flashes were noticeable in photographs of lightning flashes of which reproductions appeared in the *Western Electrician* of July 26th. They were not as plainly marked, however, in the engravings as in the photographs. Sir Henry Trueman Wood said it had been suggested that the dark lines might be due to oxides of nitrogen, produced by the flash and remaining in its path, the line of nonactinic material thus produced appearing in the photograph against the background, illuminated perhaps by subsequent flashes. The paper continues as follows:

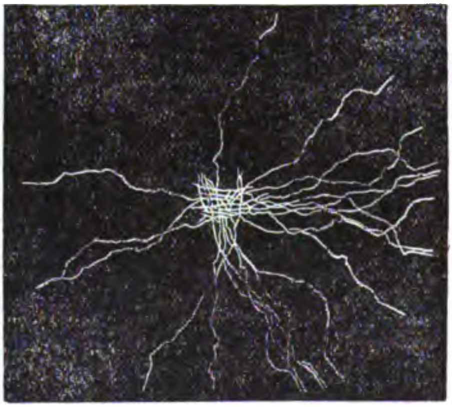
The idea occurred at the time to myself, and probably to a good many others, that the matter might be solved by means of the Wimhurst induction machine, the powerful sparks of which form no bad imitation of lightning flashes. Mr. Clayden probably settled the matter as to the way in which the "black flashes" were produced by taking photographs of the spark and exposing the plate before development to diffused light, when darkened lines were the result, thus showing, it must be admitted, to the surprise of many, myself among the number, that it was merely a case of reversal of the image. I had not the chance of using a Wimhurst machine until a short time ago, but I thought it would be interesting to try whether one could get anything which would justify the theory. It seemed to me that if the plate were exposed immediately after the passage of the spark against an illuminated background, supposing the spark marked out its passage in the air, as has been suggested, then some record ought to be found on the sensitive plate. I made a good many trials to this end, making the exposure immediately I could see the spark, which, of course, was really after it had passed; but I was not able to discover the faintest trace of anything on any of the plates exposed. Subsequent experiments, however, showed that it was very easy to get the image of the spark, either in its usual condition or entirely reversed, if the spark was photographed with an illuminated background behind it, and the exposure on the background continued for a sufficient time after the passage of the spark; or if, when the spark was photographed against a

dark background, a subsequent exposure to an illuminated background was made. The illuminated background was simply a screen of tissue paper with an arc lamp behind it. It was placed a few inches behind the terminals of the machine. The cuts show the most perfect reversal was obtained by a preliminary exposure of two or three seconds, and a subsequent exposure of about five. By a still longer continued exposure a re-reversal took place, and the spark in the print was again indicated by a white line. There were also many cases of partial reversal, in which the image was reversed at one end and not at the other, or reversed at the sides and not at the center. That is to say, the positive print showed a white central line or core, bounded by dark edges. It appears a rational conclusion that in these cases the reversal had commenced along the sides, but had not reached the center.



Where a background was employed, of which half only was illuminated and half dark, the reversal took place only in that portion of the spark which had behind it the illuminated portion.

All the experiments, it appears to me, go to confirm the theory put forward by Captain Abney, and elaborated by Professor Meldola, as to the cause of the reversal of the photographic image,—namely, that the bromine set free by the action of light begins, as soon as a certain quantity has been liberated, to combine with the reduction product originally formed, thereby forming fresh bromide of silver, and re-sensitizing the portion of the plate where the effect is produced.



It may be worth mention, as a reminder to those who may be inclined to try experiments with the Wimhurst spark, that the analogy between it and the lightning flash must not be pushed too far. For instance, when some photographs were shown in which the lightning flash was shown broadened out by motion of the camera, it was naturally objected that photographs of the induction spark taken on a rapidly-revolving plate, showed no apparent movement. The observations which Mr. Preece has caused to be taken in thunder storms by the post-office telegraph instruments, indicate that lightning flashes have often a duration of definite amount, quite sufficient for movement of the camera to blur or enlarge the photographic picture.

Another interesting result obtained by photographing the electric spark is that a measure of its duration may be obtained. I am able to show you some photographs of the spark taken on a rapidly-rotating plate. The plate, or film, for many of the photographs were taken on paper, was mounted on a disc which was rotated by an electro motor at a speed in some cases exceeding 2,000 per minute. The largest disc was 20 inches in diameter; the smallest about 4 inches. Of course, the larger the disc the greater the circumferential speed, but in practice the motor I was using could not drive the large discs at a very high speed, and the greatest speed I got was with a disc of 8 inches in diameter (effective) running at 1,500. This gave a speed of 600 inches per second at the point when the outer end of the spark was photographed. There is no perceptible difference in the width of a spark taken when the plate is stationary and that of one taken when the plate is running full speed, and certainly it is not displaced to the extent of the twenty-fifth of an inch. It follows from a simple calculation that it does not last the 10,000th part of a second.—*Western* (Chicago) *Electrician.*

TRUE COLOR VALUES.

RENEWED attention has of late been called to this subject, in Europe as well as in this country. In the current number of the *Photographische Nachrichten* (No. 36) Dr. F. Stolze publishes an elaborate and exhaustive paper on the subject, in which Dr. Stolze pays the following tribute to the latest publication of our fellow-townsman, Mr. Fred. E. Ives, viz.: "Through the labors of Veress, in Klausenburg, the question of photography in natural colors has of late been stirred up; while on the other hand Fred. E. Ives, as shown in No. 35, aims to solve the problem in a different manner. The direct method proposed by Veress has not, up to the present time, produced an actual solution of the question; consequently from that standpoint his method must be considered a failure, and it is questionable whether the results promised will will ever be obtained by his process. On the other hand, it cannot be denied that Ives has made a complete success in the solution of the problem, at least for lantern slides; and here we can positively state that, theoretically, the process is correct, and if sufficient care is exercised in the required conditions it is possible to reproduce a picture colored true to nature by means of a projecting lantern."

This acknowledgment, coming from so high an authority in the field of photographic research as Dr. Stolze, must be encouraging to Mr. Ives, and spur him on to attain still greater results in the future, which we will be glad to publish. We regret that lack of space prevents us from reproducing Dr. Stolze's paper in full in the present issue. J. F. S.

ELEVENTH ANNUAL CONVENTION OF P. A. OF A.

PHOTOGRAPHIC APPARATUS AND MATERIAL EXHIBIT.

IT is to be regretted that the space provided for the stock exhibit was so limited as to preclude many dealers from obtaining space. Every foot of space was filled, and the exhibits were tastefully arranged in the ante-room outside of the lecture-hall, as well as in the larger room provided for the purpose. One pleasant feature, which it is to be hoped will be continued, was the throwing open of this as well as the art exhibit to the public, during parts of the week. It has always seemed to the writer that if moderate-priced admission tickets to our annual exhibitions were issued, the general interest would be much increased and the finances of the association not curtailed.

There was rather a dearth of new inventions in apparatus. One of the most prominent features of the stock-room proper was the really fine display of pictures shown by the dry-plate makers.

The Cramer Plate Works showed a general line of portrait work by about forty photographers. The pictures of Enoch Arden, by McMichael, in the Art Exhibit, and the statue pictures by Hardy, of Boston, were also made on the Cramer plates, showing its fine qualities for rapid portraiture. The Seed Co. displayed finely-lighted large portraits by Baker, of Columbus, Ohio, original poses by Max Platz, of Chicago, and beautiful work on white backgrounds by Roesch Bros., of St. Louis. Very noticeable also was a fine set of views and cloud-effects taken from Mt. Hamilton, Cal., by Prof. S. W. Burnham, of the Lick Observatory.

The Eagle, Allen and Rowell, and Standard plates also made a display, and the Harvard Co., while not making an exhibit, were well represented by the genial Mr. Nash.

The Knorr Mfg. Co. showed a fine collection of pictures, which were in contest for the prize for the best prints made on Diamond albumen paper; this was awarded to Rose, of Providence, R. I. They also had a full assortment of papier-maché trays and other specialties, under the care of the assiduous Geo. Bates, Jr.

The Blair Camera Co.'s well-known manufactures were fully represented, including the justly-celebrated Hawk-Eye Camera.

A novel feature of the exhibition was a beautiful collection of photographs on china, burnt in, by Benjamin Bros. & Werner, of Cincinnati.

J. W. Bryant and his able assistant, John Sullivan of LaPorte (not Boston), were kept busy in one corner of the hall taking orders for and keeping in motion their backgrounds on wires. We congratulate Mr. Bryant on the improvement in the design and execution of his grounds from year to year.

E. & H. T. Anthony & Co. had their usual fine exhibit of apparatus, including large portrait cameras.

The local stock dealers were well represented by E. J. Pullman with a general line of photographic goods.

Among the improvements of apparatus deserving special notice may be mentioned a new self-adjusting time and instantaneous shutter by the Kalamazoo Shutter Co.

The Acme Burnisher Co. showed a new eight-inch burnisher meant specially for amateur use; also a full assortment of their machines, which have become a standard article.

Wilson-Hood-Cheyney Co., of Philadelphia, had a tastily-arranged exhibit of drapery curtains and Osborne's accessories.

Among the other exhibits may be mentioned Packard Bros.' accessories, Entrekin's burnishers, and B. French & Co.'s celebrated Euryscope and Darlot lenses,

L. W. Seavey occupied a balcony on the second floor of the museum with his backgrounds and accessories, and attracted and entertained visitors by an orchestra stationed in one corner of his space.

In the ante-room to the lecture-hall were several exhibits of note. The Eastman Co. demonstrated how "you press the button, and we do the rest," and the general capabilities of the transparent films—*when you can get them!*

The A. M. Collins Mfg. Co. were represented by Messrs. Hastings and Janes with a full line of their standard cards. Their excellent and original designs for printing and lithographing mounts would suit the taste of the most fastidious photographer, and the quality of their cards continue to be unsurpassed. Bonte, of Chicago, had an exhibit of foreign card mounts. Hetherington's tall figure was prominent in this room, among his well-known accessories and fancy backgrounds.

In the lecture-room was a very fine display of work done by the air-brush, showing its capabilities in skillful hands of very close imitation of the finest crayon and pastel work.

A. E. MARIS.

DEVELOPING.

READ AT THE WASHINGTON CONVENTION OF THE P. A. OF A.

DURING the past year there has been little change in the methods of development. Pyro still stands as the favorite, although several substitutes have been used and suggested.

Eikonogen has advanced into favor, many of the dry-plate makers giving eikonogen formulæ for use with their plates. I have used it with great success in short exposures, and my experience with it is, that you can afford to give one-third less exposure than for pyro; and I feel sure that one cause of the complaint that sufficient intensity cannot be obtained with eikonogen arises from over-exposed plates and new developers; for a plate exposed for pyro development will be over-exposed if developed with freshly-mixed eikonogen.

This was proved to my entire satisfaction upon some Eastman films exposed in a No. 2 Kodak on Decoration Day, when the light was very bad for snap-shutter exposures.

The first twenty exposures were developed with the potash pyro developer known as Hoover's developer, a developer which I have handled most successfully upon all kinds of exposures; but they proved so hopelessly under-exposed that I put the other part of the roll aside, thinking it was not worth the trouble to develop them. But Dr. Weigal, one of the members of our Camera Club (an ardent experimentalist), brought me some eikonogen developer he had mixed, and I developed the rest of the films, and got at least one-third more out of them than I got on the first twenty with pyro development; and some of them (all things considered) making good printing negatives. Dr. Weigal's formula for mixing the eikonogen developer is 48 grains of eikonogen dissolved in hot water; add to that 2 ounces each of a solution of sulphate of soda (hydrometer test 60) and carb. soda (hydrometer test 45); then add enough water to make up 8 ounces in all.

For over-exposure this developer can be restrained with bromide of potassium, the same as pyro. For snap-shutter exposures this is the best developer I know.

The potash pyro developer (Hoover's) I have referred to is too well known to need the formula being given more, but I would again call attention to the method of using the sulphate of soda. In the majority of formulæ it is divided between the pyro solutions and the potash of soda solutions.

This is wrong in both theory and practice. If it requires four atoms of sulphate of soda to one atom of pyro to get the best effect from both, then it stands to reason that the whole of the sulphate should go into the pyro solution. If you could always be sure of using exactly the same amount of each solution, then it might be divided; but even then there would be no advantage in dividing it. But where different exposures and subjects require first more pyro, the balance of 4 to 1 is being continually upset.

Why is it that so few photographers on this side of the Atlantic use liquor ammonia as an accelerator, instead of potash or soda? There are a few, and those few among the best-known names who produce high-class work, who do use it; but they are the exceptions.

The deposit caused by ammonia is exceedingly fine, the softness and gradations everything that can be wished, and you can get more out of a given exposure by ammonia than any other alkali. But few photographers like the color of the deposit, which is greenish gray, and they are generally deceived by the apparent thinness of the negative. But I think if photographers would only get over the idea that they want their dry-plate negatives to approach as near as possible in color to a wet-plate they would find many advantages in the use of ammonia. For copies for enlarging upon bromide papers there is nothing can beat an ammonia-developed negative.

If photographers want a wet-plate color and effect, why do they neglect the oxalate developer? Many German and French photographers of the highest rank have used oxalate from the first, and still continue to use it. With a full-bodied plate, that is, one rich in silver bromide, and particularly one which contains a small proportion of sodide of silver, the oxalate developer gives fine results, and the old wet-plate man can delight his eyes with a negative which very nearly resembles a wet collodion plate. In many cases I have been able to use oxalate upon a plate that with pyro has been hopelessly spoiled by green fog.

G. CRAMER.

TO MODIFY A NEGATIVE WITH TOO INTENSE CONTRASTS.—Cover the back of the negative with a coating of collodio-chloride, then expose to the light, at the bottom of a deep box, the image in front so as to obtain a positive image on the back of the negative. After fixing and washing print in the usual manner; the presence of the positive softens the contrasts.—*Bulletin de l'Association Belge.*

EXPRESSION OF FORMULÆ IN PROPORTIONATE VALUES.

EDITOR AMERICAN JOURNAL OF PHOTOGRAPHY:

DEAR Sir:—The publication of your "Old Mill on the Crum," in last number of JOURNAL, suggests a subject of interest to me, and which I think would interest others also.

In attempting to compare the formula given for developing "Our Illustration" with that I use, the absurdity of the present method of stating photographic formulæ is clearly apparent. Certainly what the operator must know is the composition of the solution actually applied to the plate, not that of the stock bottle. Now the Washington developer contains:

Hydroquinone,[*]	1.125 per cent.
Eikonogen,	1.5 "
Pyro,	.75 "

Which proportion, in the hands of experts, have proved the best average.

Now in order to find out what the real relations are of the new formula for orthochromatic plates, we must make the following calculation. (See p. 265, Sept. number).

I.—GIVEN FORMULA AS PUBLISHED.

	Grains.	Per Cent.	Actually Used.
Pyro, 2 drs.	120	6.0	.40
Citric acid, 15 gr.	15	.75	.05
Oxalic acid, 15 gr.	15	.75	.05
Water, dist., 4 oz.	1920	100.00	
II.			
Carb soda, 3 oz.	1440	30.00	4.
Sulphite soda, 3 oz.	1440	30.00	4.
Water, dist., 10 oz.	4800	100.00	100.

III.—PROPOSED FORMULA.

Sulphite of soda, 5 dr.	300	8.0
Eikonogen, 45 gr.	45	1.2
Hydrochinone, 15 gr.	15	.4
Water, dist., 8 oz.	3840	100.00
Potassium carbonate, 1½ dr.	90	2.4

PARISIAN FORMULA (P. 232.)[*]

Sulphite soda	100 gr.	10. per cent.
Hydroquinone,	15 gr.	1.5 "
Hydroquinone,	5 gr.	.5 "
Potassium carbonate,	50 gr.	5.0 "
Water,	1000 gr.	100. "

And as the carbon compounds are the active agents in development, we have the following strengths: .4, .75, 1.125, 1.6, and 2 per cent.; the first two pyro, the last two mixed eiko. and hydroquinone. Now it appears to me no other method is possible to give an exact idea of the composition of developers in such a way as to render comparison possible. I have no doubt some will say, start with the term, thirty grains to the ounce. You will find about the same number of figures required, and even more difficulty in avoiding errors. I believe the first journal of photography that begins printing all their formulæ in per cent, of the strength actually used will add thereby to its reputation.

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[*] Hitchcock, see *Anthony Bull.*, 1889, p. 71.

[*] The Parisian formula was not mentioned in connection with the orthochromatic plates, as it had not proved satisfactory.—Ed.

Do not think I am grumbling at you. I only want to push for what I think an improvement.
Yours truly,
WM. H. SEAMAN.

Washington, D. C., September 9th, 1890.

HAND-CAMERAS.

A DISCUSSION recently took place before one of the societies which had for its subject "The Use and Abuse of Hand-Cameras," under which description are all the various patterns of "detective" instruments which have been devised to delight the eyes of those who aspire to photography, and to vex the souls of others. The gentleman who opened this useful discussion very rightly deplored the danger which, he thinks, exists in the deterioration of picture-making generally by the adoption of a system which at one fell swoop does away with tripod-stand, rising-front, swing-back, and other appliances which accomplished photographers have hitherto regarded as necessary joints in their armor. That the use of the hand-camera has become greatly extended during the last few months there can be no question at all; but that there is reason to suppose that its appearance has stopped the use of the older form of instrument to any important degree, or that masters of the craft are sacrificing the apparatus with which they have done so much good work for a contrivance which, at the best, is limited in its applications, we must altogether refuse to believe.

Were it possible to take a census of those who purchase this new machine we should, we feel certain, find that the buyers of hand-cameras are mostly those who take up photography because it is just now the fashionable craze. If the fashion had taken the form of pea-green hats or sky-blue shoes, the hand-camera would have been left unnoticed by these butterflies of life. They care not for art, for they possess not the type of mind which can appreciate art; but they can no more afford to leave the last new craze alone than they can afford to miss the annual exhibition of the Royal Academy, or any other show or "function" to which the society fetich which they worship has set its approving seal. If they thought that the acquisition of the ar involved any real trouble or the need of exertion, it would, perhaps, have been different; but the cunning dealers have met them half way, and have whispered to them, "You push the button, and we do the rest."

It is a comfortable way of acquiring a new accomplishment to dispense with any drudgery in connection with it, and photography seems to these recent aspirants to fame to be unique in the ease with which it may be learnt. "Touch the button," that is all; no need is there even for a button-hook. How different is it from acquiring the art of singing, with its practising at scales and endless intervals,—a laborious business which, after all, may end in the discovery that you have no ear. There is no royal road either to water-color drawing, for you must know something about perspective and the theory of color before you can paint well enough even for a charitable bazaar; but with this charming new acquirement, which is patronized by society, you merely touch a button, and somebody else is kind enough to do the rest.

It is quite evident that those who take up photography merely because they regard it as "the thing to do" will never be able to turn out good work. They may produce a decent picture once in a way, for, as we all know, flukes are not confined to the billiard table; but the majority of the plates or films which they expose by the touch of that magic button are, in the nature of things, predestined to failure. The touch of the button—which they look upon as the chief, if not the only, manipulation necessary—is in reality the last of a series of important operations, and the only one which is simply mechanical in its nature. The first operation is to *see* a picture in that which lies before us; and the number of those who have no eyes for such things is far greater than those who lack ears to guide them in singing a melody correctly. Then come the questions of distance, sufficiency of light, to say nothing of the knack of holding the camera level, and pointed in the right direction to include the required subject. To the thoughtless buyer of the touch-button contrivance these are simple things to surmount, and it will not be until some one else has "done the rest" that he will find out his error. He takes no heed of anything beyond the mere mechanical part. He sees something which he fancies will give him a first-class picture,—an open landscape, a grove of trees thick with shadows, or even the interior of a room, it does not matter which,—all is the same to him; he merely has to press the button. Then the plates or films are sent to the dealer, who must do his best to coax an image out of them, or to satisfy his customer that there is no image there to coax.

There is no doubt that this new type of photographic worker—or, rather, player—has been born of the hand-camera; and, while we feel inclined to smile at him, as we did last year when, from the same laudable motive, he took to banjo playing, we must acknowledge that he is harmless, and is, to some extent, serviceable. He will not, it is true, advance the progress of photography one jot, nor will he produce any picture worth looking at. His self-imposed task will not give birth in his mind to any fresh ideas; but he will spend money on his transient hobby, and in that way he will do good. So let them play at being photographers, and spend their money on apparatus as freely as they like. The hand-camera is not a dangerous weapon like the revolver, for if the shots do not hit the target, they do not go astray. In the meantime, the real workers will keep to their old ways, although they are ready enough to acknowledge the great value of a hand-camera when used with knowledge and discretion.—*Photo.* (London) *News.*

COMPLETE ELIMINATION OF THE HYPOSULPHITE OF SODA FROM POSITIVE PRINTS ON ALBUMENIZED PAPER.—After first washing in abundant water, plunge the prints for a few moments into a solution of table salt at 5 per cent. Prolonged washing should follow this immersion, and this is best done by placing the prints on a glass plate and exposing them to a jet of water under pressure, repeatedly turning them.—*Bulletin de l'Association Belge.*

THE USE OF THE COLOR-SCREEN WITH PLAIN PLATES.

WE have received the following interesting communication from a valued correspondent,[1] who is an active member of the Lynn Camera Club, as well as Electrician-in-Chief of the Thomson Electric Welding Company:

LYNN, MASS., August 2, 1890.

EDITOR AMERICAN JOURNAL OF PHOTOGRAPHY:

In the August number of the AMERICAN JOURNAL OF PHOTOGRAPHY I notice an article upon the use of the screen with orthochromatic plates. Permit me to make a few remarks with regard to a statement contained in the article mentioned. The writer shows considerable experience with orthochromatic plates and their adjunct, the yellow screen. I would state that I have had no experience whatever with orthochromatic plates, but have employed, with what would seem to be some success, the yellow screen in connection with ordinary plates, and was therefore somewhat astonished to see the statement, page 235 of the JOURNAL, "I have often heard it said, and often seen it written, that a yellow screen gives an iso- or orthochromatic effect with an ordinary plate. My opinion of a man who says this is that he is not a fool, but a deliberate fibber, if not worse. No one who has ever tried this once would ever make the statement. And I most emphatically deny that a yellow screen has any effect on an ordinary plate, except to make the negative worse than it would otherwise be." It is probably true that with orthochromatic plates and a yellow screen the best results are obtained, but it seems to me a little hasty to deny the effects of the screen used in connection with the ordinary plates. It is, without doubt, difficult to obtain a clear horizon on distant views, not to speak of cloud effects, and my experience has been that what is entirely impossible without the use of the screen can be obtained by using it and the ordinary dry plate, with sharp definition of the horizon and even beautiful cloud effects.

The orthochromatic plates are rather expensive, and there is some uncertainty connected with their use, while, as they are sensitive to yellow light, they require careful development. The ordinary amateur is much more familiar with the use and treatment of ordinary plates, and, judging from my experience, will find the yellow screen a valuable adjunct. There are certain views which will make its use almost a necessity. I enclose herewith a print of a negative obtained on a Cramer 30 plate, with a 10-second exposure, on a Bausch & Lomb lens; stop, 64 U. S. The print will speak for itself. I am positive that I could not have, without the use of the yellow screen, obtained the negative from which this print was taken.

Yours truly, HERMANN LEMP.

We reprinted the statement complained of without comment at the time, and will say that, taken separately, it is certainly misleading, as the writer of the original article must have used weak or unsuitable screens. It is a well-known fact that if the screen used in connection with the ordinary commercial dry plate is sufficiently intense yellow to absorb all or nearly all the blue and violet rays, the effect will be similar, or nearly the same, as that obtained on the commercial orthochromatic plate used with a very thin screen. The accompanying print certainly shows that our correspondent has a suitable screen for his purposes, as well as an extraordinary lens, to produce the effect with the short exposure mentioned.—ED.

AMATEUR EXPERIENCES, VII.—AN ACCIDENTAL MEETING OF THE L. C. C.

EDITOR AMERICAN JOURNAL OF PHOTOGRAPHY:

AS corresponding secretary of the Leopardville Camera Club I received the following circular, viz.:

A CONVENTION OF AMATEURS.

The Syracuse Camera Club, by resolution adopted August 8th, authorized its president to issue the following address to the various amateur photographic societies of America:

In order to diffuse a more widely-spread scientific interest in the science of photography, and to promote social intercourse among the amateur photographers of America, your attention is called to the desirability of a convention of American amateurs at an early date.

To promote this enterprise you are invited to name a date and place when a delegate from the Syracuse Club may have the honor of meeting yourself or any delegate from your club, with a view to a preliminary organization.

An early reply is solicited. Yours respectfully,

ARTHUR P. YATES, *President.*

WALLACE DICKSON, *Secretary.*
Address P. O. Box 173, Syracuse, New York.

Unfortunately, the circular arrived the day after the regular meeting of our club; but recognizing the importance of prompt action in the premises, I concluded to bring the matter before the club on the first occasion I should meet enough members to form a quorum for business. For this opportunity I did not have long to wait; as I dropped in at the Leopardville Cross-Roads Store, on the following Thursday evening, I found, as I had expected, more than enough of our members present to organize an "accidental meeting." On my arrival, our old deacon (he of the pin-hole camera) was on the stool within reach of the open cracker box, without which no country store can succeed. Mr. Rochester Ross was gathering up the stray cheese crumbs which had fallen outside of the cover, while Brother Fogg and our president, the Rev. W. A. Lense, had ranged themselves within easy reach of a tray of evaporated prunelles. The president, however, was engrossed in the practical working of the patent dry-beef chipper, and somehow every time the reverend gentlemen would drop the lever, a thin shaving of luscious beef would be the result. Our fair and amiable secretary, Miss Carrie Kase, and Master Fritz, the fortunate possessor of an 18x10 Waterbury, had met at the candy counter, and were mutually trying to settle on the flavor of the confections within reach through the broken pane of glass. There were a number of other persons present, but with these we have nothing to do. After stating my business, the president requested the deacon to call the meeting to order. In response to the deacon luncheon was suspended, the communication was read, and commented on. During the reading the party in the store were joined by the Rev. Hercules Lamb, the president of the "Turkeytown Tripod Club," who, after he had finished his preliminary water-cracker, stated that his club had received a similar invitation, but action had been deferred until the wishes of the sister club at Leopardville became known. On motion of Mr. Fogg, the Rev. Hercules Lamb was granted the permission of the floor, and invited to take the seat farthest away from the exposed samples.

The deacon stated that he was in full accord with the scheme, and that such a convention ought to be held at an early date; and he would suggest that at the same time a resolution be offered indorsing the anti-tobacco plank in the Greenback platform, as it would encourage a higher standard of morality among the members of the various clubs throughout the country. The deacon then reached over after a couple of crackers, and in a stage whisper requested Mr. Ross to reach him a few crumbs of cheese, as his throat was dry.

The question was now open for discussion. Mr. Fogg thought it would be a good thing for photography in general, and he was heartily in accord with the plan; further, that he would be willing to be a delegate from the Leopardville Camera Club to the proposed convention, and go to Syracuse or any other place east or west of the Rocky Mountains, provided the club paid his expenses.

Mr. Ross replied that it was customary for delegates to pay their own expenses, as the honor of being a delegate was greater than the paltry outlay involved. This was objected to by our president, who so far had maintained silence, as well as his position between the evaporated fruit and the beef-chipper. He thought that if the parties in the convention expected us to send some of our specimen blue prints to give éclat to their exhibition, and if they wanted the benefit of our experience and experiments, the least they could do would be to pay the expenses of the delegate, and that the president, by virtue of his office, was the proper person to represent the club. This brought the Rev. Hercules Lamb to his feet. Forcing down the remnants of his last cracker, he said that "these were his sentiments exactly," and he said so emphatically in the name of the Turkeytown Tripod Club. Miss Kase now stated that the discussion seemed to be drifting away from the question. At this point a fortunate interruption took place,—Master Fritz had purchased two nickel prize bags of fresh roasted peanuts, one of which he passed around the meeting. After order was restored, and the crackle of the crisp *arachis* had subsided, Mr. Snappschotte, the corresponding secretary, who had broached the subject, stated that the circular set forth the object of the proposed convention, and that the members had certainly gotten away from the subject; that if the proposed organization could be effected it would be a great thing for amateur photography, and no one could foresee the great and lasting results which might result. Conventions would be held, social intercourse promoted, results compared, badges and lapel buttons adopted, exhibitions held, medals, premiums, and diplomas granted; and, who could foretell, perhaps at some future day a monument might be erected to the discoverer of the Cyanotype process? All these things were among the probabilities of the near future. He would therefore make a motion that the secretary of the Leopardville Camera Club be instructed to acknowledge the receipt of the communication, and inform the projectors that the club was in thorough accord with the movement, and would give the scheme the support of the individual members, as well as that of the club as an organization. The motion carried unanimously. Motion was then made to adjourn, to the great relief of the proprietor of the Leopardville cross-roads general store.

J. FOCUS SNAPPSCHOTTE.

TREATING FLEXIBLE PLATES.

WE have ascertained that the use of alum after development produced on flexible plates an effect that rendered manipulation difficult. It was necessary to first learn whether it was the support or the gelatine film that caused cockling.

For this purpose we made several negatives, and we detached the gelatine film from its support. The support remained absolutely flat, consequently it was the gelatine had caused the cockling. But we also discovered that this effect is produced more strongly when the gelatine film has been alumed before or after fixing. We have, therefore, done away with the use of alum. We have also done away with alcohol in the glycerine bath, which produces the same effect as alum, and which may sometimes also shorten the length of our negative.

We want our flexible plate to be able, more than any other preparation, to give scientific results. For this it is necessary that the gelatine film should be rendered absolutely inextendible in the fullest acceptation of the word. To do this we have entirely modified the mode of drying. This is our present mode of operating: The negative, after developing, is washed and fixed. If we have reason to fear the yellow coloration, pass in a both of citric acid at two per cent. before fixing, which is done in a solution of hyposulphite of twenty per cent. After fixing, wash well the flexible plates, and plunge them in a bath composed of:

Water	1 litre.
Glycerine	30 to 40 c.c.

Leave the plates in this bath two hours, or all night if not hurried in the printing. It is absolutely necessary that each negative should absorb a small quantity of glycerine, an operation that has for its object to give it more flexibility. It is well to change the place of the negatives in the dish of glycerinated water, especially if many had been placed together in this dish. This being done, varnish—a very easy operation—with lac varnish and water. This varnish, called hydrophite, is now found almost everywhere. It is poured over the plates whilst they are still wet. The plate is taken from the glycerinated water, and placed on a glass plate rather larger, so that the lower right-hand corner of the flexible plate exactly coincides with the lower right-hand corner of the plate; the gelatine film should be on top, of course. Make the same disposition of a second, then of a third negative, and allow them to drain for about five minutes against the wall. Afterwards take the first and float on the surface a coat of varnish. With a badger blender, or with the finger, direct the liquid so that it covers the whole of the negative, and pour off the excess of varnish into a glass. Give at once a second coating of varnish, which has been placed ready for use on another glass, and pour off the excess into the first glass in order to prevent air-bubbles. Now drain. Each negative should be varnished in this manner. After a drainage of five minutes, raise each plate from the glass on which it is found, place it flat, with the film on top on a sheet of bibulous paper.

All the negatives are thus placed side by side, and allowed to dry on a table Once dry, the negatives are absolutely plain, and show no tendency to cockle. Moreover, they have undergone neither extension nor shrinking; their dimensions are exactly similar to that of the flexible plate before being placed in the frame.

It is possible to do away with varnishing, but we recommend it very strongly. In this case it is well to sponge the coating on coming from the bath, so that no trace of glycerine remains on the surface of the negative, as the glycerine might, later, at the time of printing on albumenized paper, give rise to spots. But in sponging with a fine sponge, steeped in pure water, and then pressed between the fingers to free it from all excess of water, spotting is no longer to be feared.

MONITEUR.

A NEW PROFESSION FOR WOMEN.—In spectroscopic work (in astronomy) the eye has been superseded of late, to a great extent, by the photographic plate, which is now able to recognize fainter impressions than the eye, and to register them permanently. Professor Pickering has been continuing at Cambridge his remarkable work, and it is also being carried on in the southern hemisphere by a party sent there in connection with the Draper memorial. The instrument employed is a photographic telescope, with a prism or a series of prisms in front of the object-glass, the whole mounted like any large telescope, and provided with an accurate driving clock. With an instrument of this kind we obtain upon the sensitive plate the spectra of all the stars which happen to be in the field of view,—sometimes a hundred at a time, as when a cluster like the Pleiades is in question. This method has made it possible to complete, in a comparatively short time, a general survey of the spectra of all the brighter stars of the northern hemisphere, and the survey is now being extended to the southern hemisphere, where it is already well advanced. Whenever the spectrum of a star, thus photographed on a small scale, is found to present any interesting peculiarity, it is examined with a more powerful instrument, which photographs its spectrum on a much larger scale, and this second photograph is then enlarged again for special study.

It is worth recording here that the examination of the Harvard photographs has been made almost entirely by women, who are assistants in the laboratory. A niece of Dr. Henry Draper, whose memorial is now being erected in the form of this monumental work,—the spectroscopic survey of the heavens,—had the good fortune to discover in the star spectra the delicate doubling of the lines which has proved so full of information.—(*Forum*) PROF. CHARLES A. YOUNG.

THE best "kodacker" in America to-day is Miss Alice Longfellow, daughter of the poet. The finest views of the Massachusetts coast are touched off by her in the stormiest and windiest weather. The result is that she has been the unconscious originator of many pictures hung in line in Boston, and her illustrated storms are at present gracing the title-pages of a book of sea songs.—*New York Truth.*

"I THINK photography is very interesting," she said to a young man who is in that line.

"Yes, it is."

"I should like to have you make a picture of me."

"With pleasure."

"How would you prefer to take me?"

He looked at her with a face that showed deep thought, and then replied, slowly but in a firm voice: "For better or for worse, by all means."—*Washington Post.*

THE following interesting item has been going the rounds of the photographic and secular press:

"A WONDERFUL INVENTION.—Mr. Edison has made another wonderful invention. He attaches an instantaneous photographic camera to his phonograph, plants his two lethal instruments right in front of the orator, and sets them to work. The phonograph records every syllable that falls from his lips, every 'hem and er,' and mispronounciation, while the lightning camera simultaneously photographs eight or twenty times every second the movements of the speakers. Then the photographs are projected by a magic lantern the size of life, the phonograph is set going, and the oration can be delivered ad infinitum."

The above reads like some of the other bulletins which have emanated from the lair of the wizard of Menlo Park. To our mind the announcement seems just a little too previous,--the phonograph part may be all right, so far as we know, but the "lightning camera with its twenty consecutive exposures to the second," and no composites, either;—that is the part, to use an Americanism, "that sticks in our craw." It may be all right; we may be wrong, but before taking much stock in the statement, we should like the privilege of exercising our new £200 Frodsham ¼-second stop-watch on this photographic "Sunol" as it comes in on the home-stretch.

If our memory serves us right samples of similar work were published some months ago by an enterprising daily, but there was a descrepancy noticeable that, at least to our mind, needed an explanation which we have never been able to obtain, viz.: In one of these gesture photographs, the subject had on a pair of striped pantaloons, while in the next in number, said to have been taken one-fourth of a second later, he certainly had on a pair of loud plaids. Although we do not for a moment wish it understood that we doubt the statement, as set forth in the great daily, we must acknowledge that this pantaloon business has made us just a little sceptical.

ADOLPHÉ.

DECOMPOSITION OF EIKONOGEN.—Eikonogen in crystals kept for a long time becomes greenish in color, then black. This partial change does not prevent its use as a developer. The solutions then obtained have a more or less green color, whilst the substance freshly prepared yields solutions of a pale yellow. It is easy to remove from the affected mass the portion which has remained uninjured. Make a cold and very neutral solution of sulphite of soda—that is to say, containing less than 500 grammes of the salt for 1 litre of water; boil, and add an excess of the affected eikonogen reduced to powder. Agitate with a glass rod until complete solution. Decant, and cool rapidly the liquid in a bottle exposed to a flow of cold water and continually agitating, so as to avoid the forming of large crystals of eikonogen, which rapidly crystallizes. Filter the whole and wash the crystals on the filter with a little alcohol. Allow the mass to dry, and we have an eikonogen that is almost colorless.—*Journal des Sociétés Photographique.*

BUSINESS TACT.—Unprepossessing female (to photographer): "How much would you take me for?" Photographer: "About sixteen, madam." He got the job.—*Texas Siftings.*

LITERARY AND BUSINESS NOTICES.

A CORRECTION.—The Eastman Souvenir.—It is with pleasure that we make the following correction. In our notice of the souvenir, in the JOURNAL for September, we stated that the prints were reproductions made by the "Collotype process." We did this only after a careful examination, the pictures being equal to the best results obtained by that process. We did not for a moment suspect there was a possibility of the specimens being "bromides." Such, however, proves to be the case, the company informing us over their signature that they were all made on their regular bromide paper, by direct exposure under the transparent film negatives, and developed with oxalate of potash. In connection with this subject, we here again call the attention of interested parties to our leader in the August JOURNAL; for if results like these can be obtained by advanced amateurs, and the paper remain white, the problem there mentioned certainly seems near a solution.

ANNOUNCEMENT.

NOTICE TO OUR PATRONS.—With the close of the current volume the price of the AMERICAN JOURNAL OF PHOTOGRAPHY will be advanced to 25 cents per copy, or two dollars per year if paid in advance. Commencing with No. 1 of Vol. XII., January, 1891, we expect to present the JOURNAL in an improved form. The pages of reading matter will be increased, so as to more than overbalance the advance of rates, while we shall try, as heretofore, to present such illustrations as will alone be worth more than the subscription price.

It is needless to state that the AMERICAN JOURNAL OF PHOTOGRAPHY is not a trade paper, but a truly inaependent photographic magazine in all that the name implies, whose pages are jealously guarded, published in the interest of the art exclusively, and not in the interest of any special concern. As a matter of course, our advertising pages are open to all respectable concerns—a fact which is recognized by the reputable trade in general.

THE "AMATEUR PHOTOGRAPHER," a small volume issued by the Rochester Optical Company, of Rochester, N. Y., is verily what the title-page states, viz., "A Complete Guide for Beginners in the Art-Science of Photography." We congratulate Mr. Carlton on the concise and practical manner in which he presents the various topics. The present edition is the seventh, and comes in a revised and enlarged form.

RATHGEBER FÜR ANFÄNGER IN PHOTOGRAPHIEREN UND BEHELF FÜR VORTGESCHRITTENE, Wilh. Knapp-Halle, a. S., publisher.—A handy volume of reference for beginners, by Lieut. Ludwig David, well known as an author in connection with Charles Scolik of Vienna; and as a photographer, by his success with instantaneous photography. This is essentially a beginner's book, for such as are absolutely without any knowledge in photography whatever. The book is profusely illustrated, which in itself is of great value to the beginner. The book is divided into two parts, dealing with the negative and positive processes respectively. We advise our readers to recommend the book to any one wishing to become proficent as an amateur photographer, and at the same time is conversant with the German language.

IN answer to numerous inquiries about our illustration, "The Old Mill on the Crum," we will state that to get out our edition we used five negatives, two of which were the Vogel eoside of silver plates, the others Carbutt orthochromatic, all developed with the new combined formulæ. As the prints from these plates were used promiscuously, it is impossible for us to tell on what plate a particular print was made without seeing it. The Seed plates exposed in these experiments proved a failure under the same conditions. As to the printing, the paper used was the "Shanghai" brand; toning bath, sulphite of soda and borax; lubricator, dry castile soap. In reply to several letters received about the composition of the proposed "orthochromatic" developer we refer our friends to page 265 of the JOURNAL, and ask them to try the formulæ; the more we use it the more we like it. In conclusion, we wish to thank our many friends who have written us congratulatory notes on "Our Illustration."

J. F. S.

WE REGRET to learn, as we are about going to press, that Mr. F. Burrows has severed his connection with the firm of Queen & Co. Mr. Burrows, in addition to his thorough practical knowledge of photography in all its branches, and his inventive genius, being the author of a number of excellent appliances now in use, is an upright, genial gentleman, with whom any one should be glad to become acquainted. We hope that he may soon find an opening in which he can make good use of his talents.

NEGATIVE BY RICHARDS & CO. **PHILADELPHIA.**

AMERICAN ACADEMY.
NOV 17 1890
OF ARTS AND SCIENCES

AMERICAN

JOURNAL OF PHOTOGRAPHY.

Published by THOS. H. McCOLLIN & CO.

VOL. XI. PHILADELPHIA, NOVEMBER, 1890. NO. 11

THOS. H. McCOLLIN, Managing Editor. J. F. SACHSE, Associate Editor.

SOME HINTS ABOUT NEGATIVES.

WITH the present month the out-door season of the amateur and tourist photographer draws to a close. The days have again become short, the trees leafless, the hillsides bleak, and the romantic valleys cheerless, and there is little to tempt any but the pronounced enthusiast to wander forth with his tripod and camera. The great proportion of the outfits will be laid aside and neglected, with perhaps an occasional exception when they are brought forth from the shelf and set up for a few flash-light effects, after which they are set back until the zodiacal Taurus once more reigns supreme. Of course this does not allude to the photographic student or enthusiast, for to him the winter season brings the most interesting work of the year, viz., lantern slides, together with the opportunity for experiment and research in every department of the photographic art.

Strange as it may seem, the most neglected branch of amateur photography of the present day is the care and use of the negatives after we have them. The tourist as well as the general amateur during the season exposes plate after plate, develops and fixes them, examines them, is pleased or dissatisfied with the results, as the case may be, after which the negative is put on the shelf along with many others in some out-of-the-way closet, box, or drawer, and the creator of the "latent image" soon forgets all about them, his mind becoming engrossed with new and different subjects, which are in turn destined to fall into the same groove. It is true that occasionally a few prints are made from a few of the negatives, but this represents but a small proportion of the whole number of the negatives taken. The great majority are soon forgotten, and at the next semi-annual house-cleaning find their way into the ash-bin.

Independently, it would be an interesting fact to know what proportion of the hand-camerists' "button pressures" ever see the light of day in a printing-frame,—we here allude to the perfect negatives not the failures. But to return to our subject, we would suggest to all amateur and photographic tourists, now that the long evenings are at hand, to gather all of their photographic results, and put their negatives in envelopes, such as come for the purpose, classify and number them, and during the coming months have at least one print made from each and every negative, good, bad, or indifferent; have these mounted on a plain white card, leaving at least a two-inch margin around the print,—this will give ample room for notes or references for the future. These notes should give the exposure, stop, development, and lens, also the date, and if a view or building, where located, and anything of interest connected with the special view. If the picture contains portraits or figures, add the names and the occasion. This work will be found to be an interesting occupation,—in fact, the tourist will go over his trip once more; while photographically the comparison of the various prints will prove an instructive lecture for the future.

The prints may then be sorted out according to the subject, and if not bound into a volume can be placed in pasteboard boxes the size of the mounts, a separate box being used for each variety of subject; this is probably the best plan where there are many pictures of different subjects. Where the factor of expense becomes an item, and the amateur cannot do his own printing, we refer him to the excellent paper on "Artistic Blue Prints," from an esteemed contemporary, which is republished in the present JOURNAL. But no matter which plan you adopt, get the prints, and preserve and classify your negatives; you never know when any special negative will become of value, and unless you employ a system it is just then that you cannot find the one you want.

We were never more impressed with this necessity of a proper classification than on an occasion early last spring. We applied to a prominent member of our photographic society for a negative of a historic subject, which was wanted for an illustration. He had the negative, and wanted to loan it to us, but could not find it. He was certain that he had it; but there it was somewhere among hundreds of others, all piled helter-skelter in a closet, one on top of the other with a piece of newspaper between them; many were ruined, some broken, others spoiled by the dampness of wall. In reality, the work of this amateur, which represented years of labor and hundreds of dollars, was really valueless for the want of proper care and classification of the negatives after he had made them.

In our own practice we put each negative in an envelope, and stand them on end in a strong pasteboard box made for the purpose, and which holds fifty plates. We number the box on the outside, say 800–849, 850–899, etc. We then index the plates in a book under the proper subject; and any plate in our collection can be found in half a minute, and they are safe from dampness, dust, and interference. Where many subjects are treated it will be found to be an advantage to reserve a different box for a special subject. Quoting again from our own practice, say the 100's are historic landmarks; 200's, revolutionary subjects; 300's, colonial churches; 800's, experiments with growing plants; 900's, microscopical subjects, etc.

In conclusion, we will say that, if we can afford to make negatives, we can also afford or be willing to take care of them, bearing in mind that with the various changes which fleeting time brings we never know how soon some negative in our collection may be in demand, and amply repay for the little extra trouble it takes to preserve and classify them.

JULIUS F. SACHSE.

TO MAKE THE PENCIL BITE ON GELATINE IN RETOUCHING.—Amateurs desirous of retouching their negatives will learn with pleasure that essence of turpentine (essence grasse) spread over the negative by means of a small flannel wad (on the gelatine side), does not injure the transparency of the image, on which the pencil can be used as well as on paper. The quantity of the essence should be as small as possible; remove the excess with a wad of clean flannel. Should there be any pencil lines to remove, efface them with the same essence.—*L'Amateur Photographe.*

CUTTING PRICES.

THERE is no subject that is of more importance to the professional photographer than that of the prices which he receives for his work.

It is one upon which we occasionally see good articles published in the journals, it never escapes notice at the conventions, and we feel that scarcely too much can be said upon it, or rather that it is one which should never be allowed entirely to rest.

The difficulty in writing upon the subject is that we only reach the photographer himself, and he being thoroughly conversant with it can merely be encouraged and sustained.

What is really wanted in the matter is a better understanding of it by the public, who form the mass of patrons of the photographic art,—a just knowledge of what constitutes a really good photograph, and a disposition to meet half-way and sustain those photographers who adhere to a genuine upright business code, being determined to produce only good work and at a fair price.

It must be admitted that it is very hard, with the existing rage for cheap things, to resist the constant pressure to have things ground down to the very lowest figure. So many people do not stop to consider the excellence of what they are purchasing so much as the cheapness, or rather the smallness of the amount for which they may obtain it. Clothes and all that constitutes wearing apparel, our household surroundings, and even our houses come under the same category; we want the most show that we can get for the least money. There are two causes which are constantly bearing to foster this much-to-be-regretted condition,—namely, fashion and love of show. We don't want things to last too long, because in a few weeks or months, at best, they will be out of style, and must be replaced by newer articles; and at the same time we want to make the most possible display we can for the least outlay. Is it to be wondered at, therefore, that so many in all departments of trade do their best to cater to this desire, and that the genuine idea that a high standard of excellence in anything should be attained and maintained is so completely submerged?

Photography, for a number of good reasons, cannot be classed with most of the mechanic arts and arts of daily trade. It is, for instance, so much a fine art that it requires a special tact or ability to prosecute it successfully, and in addition to this it involves a number of progressive operations, each one of which requires the nicest and most thorough skill to bring to a successful completion. How few indeed know that there are more than a dozen different pieces of nice manipulation, some of them requiring hours of careful attention, from the taking in hand of a piece of glass to the handing over of a finished likeness, and that a slight failure in any one of these involves the loss of the work; nor does it occur to them that a failure in the last stage causes the loss of the material and time which has been bestowed upon the whole.

The ideas of people generally are rather crude upon the subject of photography. They hold it is analogous to any of the ordinary mechanical printing processes. They imagine that the photographer simply has to put a plate of glass, coated with something, in the camera, which imposing-looking contrivance makes your picture upon it, and then he runs off as many copies from this plate as may be required, under a press worked, if not by steam, at least rapidly by hand. It seems unfortunate, indeed, that the process of producing a print from a negative should ever have been given the appellation of printing, because all are so familiar, in a general way, with the art of letter-press printing that they are misled by the term into a conception that photographic printing is a process in every respect analogous to it.

It is true that photography in its most rudimentary form is so far mechanical that it may be automatically performed, as instanced in the "penny-in-the-slot" contrivances which have made their appearance within the past eighteen months, and which, we fear, will only further mystify and mislead the public in regard to the true nature of that which is necessary to the production of a good artistic photograph.

If it could only become fairly understood by the mass of those who are daily having their likenesses taken, that the road which must be traveled to secure a good photograph is a complex one, and how wide the difference is between a common tintype and a fine artistic silver-print, we think they would better sustain those photographers whose aim it is to acquire and maintain a reputation for excellence.

We fully appreciate the desire that all prudent people have to secure what they want as reasonably as possible, and we would not be understood as for a moment advocating exorbitant prices; but there is a reasonable limit, which is very easily arrived at by simply computing the value of good materials and fair skill, added to expenses of business location; and when thinking people see costly establishments advertising showy work at absurdly low prices, we would have them understand that there is something vitally wrong.

When we see photographers in fashionable and expensive quarters advertising cabinet portraits at two dollars per dozen, we know well what an injurious effect it must have in all directions; and we feel that the firms who do so should receive the severe censure of all the brother-craft. In the first place, the public are misled. They think that if so and so, who have a great name and fine location, can furnish work at that price, every one else should; and they do not know that if they went there they would not *have* the work offered them at that price, but would be enveigled into ordering their likenesses taken in a manner probably about equal to that furnished by any good photographer, and ten to one at a much higher price than the usual fair rate. Such tricks are ruinous for all smaller striving enterprise. If a man wishes to build up a reputation he must turn out really excellent work; and how is he to do so if he is to have "cabinets" at one dollar and a half and two dollars per dozen constantly pitched in his teeth. Then think of the man of established reputation and honorable and upright business principles who turns out nothing but first-class work at fair prices. How must he be explaining constantly to the unthinking why he does not also do his work at such very attractively low figures. It is probably in vain that he tells them that he uses only the best of materials and employs the highest skill which he can secure, and casts out every print that is in the slightest degree inferior; in addition to all of which he puts his own ability into the posing and lighting, which, if he possess artistic talent and has improved himself by proper study, is worth much indeed.

Such business modes as conduce to the breaking-down of good prices are pernicious in the extreme, and exert a pressure that insinuates itself into every branch. The manufacturer and stock-dealer, more especially the latter, daily find the influence irksome, and must bear up with moral energy to meet and opposite it,—and particularly now, with silver advancing and increased duties, necessarily increasing the value of so many things the photographer is dependent upon that must be imported from Europe.

Let us hope all may give earnest thought to these matters, and feel the importance of a general sustaining influence, which will be mutually beneficial to the art of photography, both in its business and its higher aims ; and let us ever be out upon all cheapening which may be the result of catch-penny tricks, inferior work, or of illegitimate business modes, and let every photographer bend his energies to the production of excellent work only, and to the maintaining of good prices.

XANTHUS SMITH.

LANTERN SLIDE MAKING WITH THE CAMERA.

IT would be no very difficult matter for us to enter upon a lengthy disquisition here as to the merits of the rival processes of lantern slide making by contact and by the camera.

This it is not our purpose to do, however; but we shall simply give some practical points in connection with the latter method, which we have found valuable in our own working, and which we hope will likewise be of value to our readers.

One thing greatly in favor of this method of working is the fact that different sizes of negatives may be utilized for slide making with little or no modification of the apparatus; while in contact printing, of course, the negative must be of the same size as the slide to be made.

In arranging the apparatus for slide making by the camera, it almost goes without saying that daylight is used. Whether full sun or diffused light, will depend upon the situation and frontage of the work-room. Which of the two is to be preferred is not easy to say. Most operators prefer the even diffused light of a northern sky ; but in our own practice necessity compelled us to use a southern exposure, and after a little experience we became decidedly fond of it.

To make the difference in working with the north and south light plainer, we will at once proceed to describe the arrangement of the apparatus. In the first place, any small camera, with a plate-holder so arranged as to carry a plate 3¼x4¼ inches, is mounted with a good lens, of say 6 to 9 inches focus. Another camera of any convenient size is arranged to hold the negative in the place usuallv occupied by the ground glass. If the negatives happen to be just the size of the ground glass, all that is necessary is to remove the latter from its frame and insert the negatives instead, keeping them in position by a few small tacks or pins. If the negatives are of a smaller size, a piece of thin wood is cut to the proper size and rabbetted so as to hold the negatives, the whole being then inserted in the ground glass frame and kept there by pins, or better, by a couple of pieces of clock-spring an inch long, confined by a small screw run through a hole in one end, the other end being left free to press the negative carrier firmly into position. As many of these carriers should be prepared as there are negatives to be worked with. The lens and front panel of the camera holding the negative are dispensed with.

A stout, flat board, from five to eight feet in length, is now provided with cross-legs at one end, so that it can be rested on the window-ledge by the other end, and be firmly supported. If a southern exposure be used, it will be found most convenient to place the board as mentioned, with a large sheet of ground glass or white tissue paper behind the second camera in the window. The board holds both cameras; the one used for exposing the plates being inside or nearest the operator, while the other, which holds the negative, is set quite near the white paper to the window, so that the negative receives a full and equable illumination from the paper. The exposing camera is now brought near enough to give an image of the proper size on the ground glass, and care taken that the exact centre of the image falls on the centre-spot of the ground glass. A sliding front on the exposing camera will greatly facilitate correct centreing; though if the cameras differ much in size, it may be necessary to elevate one or other of them on a block of wood. If this be done, see that everything is steady before uncapping the lens to expose; any tremor or jarring would be fatal to good results; so both cameras ought to be firmly screwed or clamped down to the board.

There will now be a space intervening between the lens of the exposing camera and the front of the carrying camera, unless the lens be of such short focus that it can be inserted into the latter. This will seldom happen. The space intervening should always be darkened by throwing a cloth over both cameras, supporting it by two sticks at each side to keep it from encroaching upon the field of the lens. The object of this is to prevent any stray light from entering the lens, and thus to utilize only the light that passes through the negative.

It will not be amiss for us to repeat in this connection some advice which we gave when speaking of mechanical aids to increase brilliancy of image. The principle we have just enunciated—of utilizing only the light that goes directly to the formation of the camera image—is tacitly admitted by all careful photographers, but in practice we rarely find it attended to as it deserves to be. If it was worthy of regard in the days of wet collodion, when plates were of low sensitiveness, it is far more so now, when things are so much improved. Slide making depends greatly upon a clear, brilliant image on the ground glass. Unless we have this to start with, the best chemicals and manipulations will be thrown away. The arrangement of cameras we have just been describing is very practical and inexpensive; but inasmuch as the whole apparatus *faces the light* there will often be reflections from the sides of either camera that will interfere seriously with brilliancy of image. Now, as we mentioned in the article previously referred to, if a large diaphragm of blackened cardboard, or better, card covered with black velveteen, be placed a few inches in front of the sensitive plate, it will cut off these stray lights, and be of great value. It will sometimes be worth while to have such a diaphragm in each camera; they are easily made and as easily adjusted.

Supposing that a north light be selected instead of a south, it will generally be found more convenient to elevate the end of the board carrying the negative camera, so that the sky itself may act as the illuminant, thus filling the function performed by the white tissue paper in the case of the south exposure. As the sun in the south exposure shines upon the paper, it gives, of course, a very brilliant light, far more so than the blue sky in the north, and the exposure will be much shorter. It is open to the objection that when clouds pass over the sun the strength of the light varies very greatly, but this same objection holds true to a great extent with the north light, except that, in the latter case, the exposures will be much shortened when a white cloud drifts into that portion of the sky towards which the apparatus is directed.

When the south light is used, we should recommend that the apparatus be kept horizontal, and the white paper-screen be set rather close to the negative, at a distance of say four or six inches. This will allow room for the hand to pass between, and so facilitate the shading down of special portions of the negative that are too transparent and print too quickly.

The exposure should be made by uncapping the lens, care being always taken to wait until the tremor caused by drawing out the door of the plate-holder has quite subsided.

The question, whether to use gelatine or collodion plates, we leave to our readers to decide for themselves. We ourselves prefer collodion; but excellent results may be obtained on slow gelatine plates, particularly if developed with hydrokinone or verrous oxalate.

The matter of exposure must be settled by experiment, but we must caution our readers never to over-expose plates intended for lantern slides. No restraining or tinkering with the developer will make up for overtiming, and the disagreeable muddiness which it produces. ELLERSLIE WALLACE.

COMPOSITE HELIOCHROMY.

TO THE EDITOR:

IT is gratifying to me that Dr. Stolze, himself an original and scientific investigator in the same field, is one of the first to recognize the genuineness of my solution of the problem of reproducing the colors of nature by the projection method. He does not, however, believe that my method can be made to so perfectly fulfil theoretical requirements when carried out with color-prints. A year ago I also believed that there were theoretical difficulties in the way of realizing such a complete solution of the problem in that way. Only recently have I succeeded in showing what relation the colors of the prints must bear to the colors of light used in projection in order to perform exactly the same function, and, under like conditions of illumination, secure equally perfect fulfilment of theoretical requirements. In the projection method we build up the luminous image by adding light to light. White is produced by the mixture of the three colored lights used for projection, and black by their suppression. But when we carry out the process to produce permanent pictures, the paper which may form the basis of the picture is itself white, and it is the shadows that are built up by the superposition of color-prints.

Nevertheless, the color-print has exactly the same function to perform as the lantern positive, *i. e.*, to absorb and suppress, by its shading, light affecting our primary color-sensation. If we remove our three positives from the lantern the screen is evenly illuminated with white light. If we then replace the one representing the red sensation its shades will absorb the red light, with the result that the screen bears a picture in the complementary color, light blue-green on a white ground. In the color-print method we commence with a white surface, which corresponds to the fully illuminated screen, and the shadows of the color-print representing the red sensation when laid upon this surface absorb the same kind of rays as the positive in the lantern, and with the same result, a delicate blue-green monochrome picture on a white ground. Superposing the other two color-prints upon the first one on paper is like inserting the other two positives in the lantern. It is only necessary to use dyes which completely absorb red light, but neither green nor blue-violet, for the print representing the red sensation, green light, but neither red nor blue-violet, for the green sensation, blue-violet, but neither red nor green, for the blue sensation, in order to obtain from my negatives a color-print heliochrome that exactly fulfils all theoretical requirements, provided that it be examined in the same kind of white light that we obtain with the lantern by mixing red, green, and blue-violet rays. The dyes proposed by me in my paper of November, 1888, fulfil this requirement, and color-print heliochromes made therewith, according to my instructions, must therefore exactly reproduce all the colors of nature under the conditions of illumination just stated. We have, then, a theoretically perfect process of reproducing all the colors of nature in permanent prints from three negatives.

In order to obtain colors that appear of exactly the right kind and shade in ordinary white light, dyes must be used each of which completely absorbs all light affecting the color-sensation which it represents, but no other. The colors would then be correct in ordinary white light, but would appear too dark relatively to the white ground. In order to obtain colors that appear brighter in ordinary white light dyes may be used which completely absorb only rays that excite *chiefly* single primary sensations, and other rays in due proportion. The dyes proposed by me also fulfil this requirement, so that in ordinary white light the degradation of color is insignificant, amounting only to the admixture of a little gray.

Philadelphia, Oct. 15, 1890. FRED. E. IVES.

[The editor of a New York photographic publication, in an "attempt" to prove that Mr. Ives's principle in heliochromy is not new, calls attention to the fact that Duhauron, in his English patent of July 22, 1876, stated that he made three negatives of the same subject, "one by green light, the second by orange light, the third by violet-green," etc., and asks wherein Mr. Ives's method differs from it. We answer that Ives's method represents the application of a true color theory, while that referred to does not represent and is not in accord with any theory that ever appeared in any text-book on color. Green, *orange*, and violet lights do not represent primary color-sensations, neither is it the *green*, orange, and *violet* spectrum rays that most powerfully excite the respective sensations. Duhauron concluded that one negative should be made chiefly by orange light, one chiefly by green, and one chiefly by violet, whereas Ives has shown that the negative representing the green sensation should be made chiefly by greenish-yellow light, that of the blue (violet) sensation chiefly by blue, and that the relative amount of action of each kind of spectrum rays should be definite, in accordance with measurements of the effect of spectrum rays on primary color-sensations, about which Duhauron knew nothing. Although he devoted sixteen pages of patent specification to defining his position, Duhauron was so far from knowing what ought to be done that at last, about three years later, he expressed himself as satisfied with a procedure in which it can be proved that no plate sensitive to red light was used, the negative which should be made chiefly by the greenish-yellow rays was made chiefly by the blue-green rays, and the negative which should be made chiefly by the blue rays was made chiefly by the violet and ultra-violet rays. Duhauron did not state a true or even a definite principle, and his "perfected" process was very far from being capable of correctly reproducing the colors of nature.

The distinctions that some photographic literateurs are pleased to overlook are really of very great importance, amounting to the application of a new principle, which is the keystone of success.

The editor's attempt to make it appear that to Duhauron belongs the credit of discovering the color-sensitizing properties of chlorophyl (not true), and that Ives has claimed that honor (also not true), suggests the thought that perhaps he is feigning ignorance in order to make a show of having an excuse for attacking Mr. Ives. There is one paragraph in the Duhauron specification referred to which the author of this "criticism of Ives," etc., ought not to have overlooked. We refer to that on page 15, in which Duhauron says: "*Notwithstanding the fundamental principle of the triple proofs, there may be circumstances where a fourth negative, a fourth monochrome, would constitute real progress, . . . a black monochrome, or a shade approaching black, destined to be superposed on the other monochromes.*" In view of certain admissions recently made by a person in whom the editor of the journal in question is greatly inserested (*Anthony's Photo. Bulletin*, Sept., p. 575, fourth paragraph), it would appear that the sole and only "improvement," in heliochromy, which he claims as his own was patented by Duhauron fourteen years ago, and he is left without a single support to stand on. Misery loves company, and the editor would no doubt like to believe that some one else is in the same predicament.—ED.]

HONOR TO WHOM IT IS DUE.—"THE GRANT PORTRAIT."

AN article has lately been published in one of the blanket monthlies under the signature of the president of the defunct P. & A. M. B. A., in which it is evidently sought to give the impression that that former camera-adjuster has made the familiar and accepted portrait of General Grant, which is so well known throughout the country, when in fact the accepted portrait of General Grant was made in a Philadelphia gallery by Philadelphia artists; we allude to the Gutekunst gallery, where probably more noted men have faced the camera than in any similar establishment in the country.

The portrait of General Grant made at this gallery is the only likeness of the General accepted as correct by the family and his intimate friends and associates.

The original negative of this picture was made in 1865, shortly after the death of President Lincoln, and on his arm still appears the badge of mourning. This portrait has been reproduced throughout the country in almost every conceivable manner. General Grant's opinion of this photograph is set forth in his letter, dated Washington, March 10, 1866: "I beg to acknowledge the receipt of the photographs and cartes you have been good enough to send me. I believe there has been no better likeness taken of me than those from your establishment." That this belief is shared by his companions in arms is plainly set forth in two letters from General W. T. Sherman: "New York, September 17, 1888. Please print and send me the photograph of General Grant standing with his left hand in his pocket, the best of which

I have knowledge." A month later, after the receipt of the prints, General Sherman further states:

No. 75 West 71st St., New York, Oct. 10th, 1888.

My Dear Sir:—I thank you quite as much for your kind letter of the 9th as for the two imperial prints of General Grant, which I have always esteemed the best extant. I intend to have one of these framed to form the centre of a group—including Sheridan and myself—which will be over my office-desk in this my new and final home. As I am now the sole survivor this act will be my testimony of the perfection of your work.

Believe me, sincerely your friend,
W. T. Sherman.

The crowning triumph, however, for the Philadelphia photographer came when it was proposed by a public spirited citizen of Philadelphia to present a portrait of General Grant to the National Military Academy at West Point, for which purpose Mrs. Grant personally selected the Philadelphia portrait of 1865 as the only correct likeness of the General. This was followed minutely by the artist, and when finished was placed in the Mess Hall of the Academy, where it hangs for all time to come, flanked by the counterparts of his faithful lieutenants, Sherman and Sheridan. J. F. S.

EXPANSION OF PAPER AND DISTORTION.

THERE is considerable misconception among photographers with reference to the expansion and stretching of photographic paper, and the distortion frequently arising therefrom. The terms "expansion" and "stretching," as here used, as will presently be shown, are not synonymous. We have examples now before us of finished portraits made from the same negative that seem to be very dissimilar, inasmuch as in some impressions the features appear to be longer or broader, as the case may be, than they are in others. Not only is there an apparent dissimilarity, but a pair of compasses will, by actual measurement, prove that the fact exists, and sometimes to a considerable extent.

It is now pretty generally understood by our readers that photographic paper, like all other papers, expands when wetted; also that the expansion is greater in one direction than it is in the other; hence it has been assumed by some that if one cabinet portrait be printed on paper taken one way from the sheet, and another on a piece cut at right angles to the first, there will be a considerable difference between the two pictures. There will be a considerable difference it is true, but under normal conditions it will be so slight as to be undetectable by the eye. Still, there are instances where marked distortion does exist in some finished prints that is not present in others from the same negative; and, as we shall show, it is easily accounted for. All papers when moistened with water expand, and the greatest extension is always in the transverse way of the web, while in the longitudinal direction it is very much less, though we have recently seen the reverse asserted. Longitudinally the extension is almost *nil*. We are now referring to machine-made paper, all photographic papers being of this kind. The expansion of paper is analogous to that of wood. A deal board, for example, twelve inches wide, will expand as much or more in its width as it will in a ten or twelve feet length.

Some few years back we went fully into this subject of distorted prints by stretching of the paper. We obtained some Rives's paper as taken from the roll. It was a little over twenty-four inches wide and several yards in length. From this a number of strips, two inches wide and exactly twenty four inches long, were cut, both lengthwise and crosswise. Each strip was then marked with pencil to distinguish the direction from which it was cut. They were then soaked in water for an hour or two to allow of the greatest possible expansion. When carefully measured the strips cut longitudinally were found to have expanded less than the eighth of an inch in length, while the expansion of the others was a little over half an inch. From this it will be seen that it is very unlikely the normal expansion of the paper will produce any perceptible distortion in, say, a cabinet-size portrait. The maximum extension being but half an inch in two feet, it follows that it would be inappreciable in an inch and a half face. Here we are referring to the simple expansion of the paper. We now come to the more important point, its "stretchability," and it is to this that the palpable distortion often met with is attributable.

In our experiments we found, in mounting the wet strips of paper on thick mounting boards with starch in the ordinary way, and gently stretching them in the operation, that those strips cut longitudinally, then dried, measured over twenty-four and a half inches. Those cut from the reverse direction were no less than twenty-five and three-quarters inches. This was with plain paper, but on repeating the experiment with albumenized paper a greater extension was obtained—over two inches in the twenty-four, equal to one-twelfth—in the paper cut laterally.

It will now readily be understood that in two prints from the same negative, made on paper cut crosswise of the web, the one placed on the negative in one direction and the other in the reverse, and both stretched in mounting in the direction of the greatest extension, a very marked difference in the two portraits will naturally result. In the one case the length of the features may be extended one-twelfth in their length, and in the other to an equal extent in the breadth.

It is a very common practice with mounters, when a print is misplaced, instead of removing it entirely from the board, to gently strain it into position; we have often seen it done. In the larger sizes of pictures, such as panels and imperials, one often sees them badly mounted, the edges of the prints not being truly parallel with those of the mounts. This is often attributed to carelessness in the trimming of the print; but very frequently it is due to unequal straining of the paper while attaching to the board.

From what has now been said it will be seen that when any perceptible distortion is noticed in portraits, it should be attributed to the mounting, and not, as is generally done, to the expansion, *per se*, of the paper.—*British Journal of Photography.*

THE REASON WAS APPARENT.—Lawyer: "On what ground do you seek a divorce?" Female client: "My husband is an amateur photographer, and—" Lawyer: "That will do. We'll have no trouble about it. My wife has the craze, too, and I've been taking my meals at a restaurant for two weeks."—*Norristown Herald.*

THE APPLICATION OF NAPTHALIN-DERIVATIVES AS PHOTOGRAPHIC DEVELOPERS.*

DR. M. ANDRESSEN, of Berlin, the inventor and manufacturer of eikonogen, has lately patented ten new combinations obtained from napthalin, viz., diamidonaphtalinsulfo-acid and amidonaphtolsulfo-acid, which it is claimed will work a still greater revolution in photographic development. It is stated that the reducing power of these new compounds is so varied and controllable that in the near future a negative may be developed rapidly or slowly, dense or weak, according to the wishes of the operator,—a property which will prove of the greatest practical value in the various branches of the photographic art. These various derivatives are described as follows:

I.—DIOXYNAPHTALINE.

Theoretically there are ten combinations of dioxynaphtaline possible; of these nine are known, six of which appear to be of great value, as they bring out the photographic image rapidly and strongly, and in the opinion of the inventor are especially valuable for instantaneous exposure and gallery work, viz.:

1.—α Naphto-hydrochinon.
2.—β Naphto-hydrochinon.
3.—α_1 α_3 Dioxynaphtalin.
4.—α_1 β_3 Dioxynaphtalin.
5.—α_1 β_4 Dioxynaphtalin.
6.—β_1 β_3 Dioxynaphtalin.

II.—DIOXYNAPHTALINMONOSULPHO-ACIDS.

Of the various compounds obtained, either by oxydation and subsequent reduction of amidonaphtolsulfo-acids, or by the fusion of naphtoldisulfo and naphtalintrisulfo-acids with caustic alkali, or by the sulphuration of dioxynaphtaline, resulting in dioxynaphtolmonosulfo-acid, β naphtohydrochinonmonosulfo-acid was the only compound which has proved of practical use.

III.—DIOXYNAPHTALINDISULFO-ACIDS.

The experimental trials of the dioxynaphtalindisulfo acids obtained by the different methods has shown that both of the dioxynaphtalindisulfoites described in D. R. P., No. 49857, have special claims as photographic developers, as they cause the image to come up slowly, but with great strength, a property which makes the compounds of especial value in landscape photography.

IV.—AMIDONAPHTOLE.

Of the different amidonaphtoles, which are obtainable by the reduction of nitrosonaphtole, nitronaphtole, or from the AzO-colors from naphtole, or by the fusion of the naphtylaminsulfo acids, the three following derivatives show extraordinary power and rapidity when used as a photographic developer:

1.—α_1 Amido, α_2 Naphtol.
2.—α_1 Amido, β_1 Naphtol.
3.—β_1 Amido, β_3 Naphtol (obtainable by the fusion of β naphtylamin and β sulfo-acid).

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* Translated from Liesgang's Photographisches Archiv.

V.—NAPHTYLENDIAMINE.

The naphtylendiamines require dilute alcohol as a solvent, to combine with an alkaline solution. The two following derivates are said to act rapidly and strongly in developers:

1.—α_1, β_1 Naphtylendiamin.
2.—α_1, α_2 Naphtylendiamin.

Together with the advices of above new reducing salts for photographic developers comes the welcome announcement that the manufacturers of eikonogen have at last succeeded in finding a means of entirely preventing this substance from becoming brown and decomposed. The substance by the aid of which the eikonogen is rendered permanent is kept secret. It is merely stated in the circular that a small quantity of the preserving substance is added, and that the eikonogen will in future be manufactured in the form of a white, absolutely permanent powder, for the use of which as a developing agent the formulæ remain the same as hitherto. This improvement will no doubt be welcomed by all those who have tried the eikonogen developer, and appreciate its valuable qualities. J. F. SACHSE.

EXPERIMENTS WITH CYANINE AS A COLOR-SENSITIZER.

WE have recently been trying a series of experiments with orthochromatic plates, attempting to get true values for all colors, from brilliant scarlet to deep but very pure blue. The former, of course, with ordinary plates—whether with or without a color-screen—comes out quite black, the other quite white.

Amongst other color-sensitizers we gave a very thorough trial to cyanine,—specially recommended by Carey Lea,—and as this substance has not, we think, had the attention it deserves, we give a short description of our results.

The reason why cyanine has not been as popular as it might be is probably greatly due to the difficulty of working plates stained with it. These must, indeed, be worked —till development is well advanced—in all but total darkness. It is probable that a deep green color would be the best to work with, but all our experiments were made with ruby light, the plates being carefully protected from all direct action of the rays throughout the process.

The cyanine was procured from Messrs. Hopkin, Williams & Co. It is in fine flakes of an iridescent greenish color, insoluble in water, but readily soluble in alcohol, giving a brilliant blue solution, which may be diluted indefinitely with water without any precipitation taking place. Examined by the spectroscope a band of very complete absorption is observed. It extends from the bluish green through the green, yellow, and orange, and nearly to the extreme of the red.

We first tried the method particularly recommended by Mr. Carey Lea, namely, to dip the plates for a short time in a comparatively strong alcoholic solution of cyanine,—quarter grain to the ounce,—to wash for a minute or two, and then to use the plates wet, or to dry them. We are sorry that we have to report that we found this process very uncertain. At times the plates were all that could be wished, but more often they were foggy and dirty. We tried all variations we could think of,—drying the plates after the alcohol and cyanine bath but before washing, and washing them immediately they came from the forms, using the washed plates dry and using them wet, modifying the strength of the solution,—but still the results were always uncertain. We had in mind the statement of Carey Lea, that it was necessary to use only *new* plates with this process, so that the uncertainty cannot be blamed on the age of the plates. Those we used were not a month old.

Afterwards we tried the common bath formula, namely—

Cyanine solution, 1 part in 1000 of alcohol	1 part.
10 per cent. ammonia	1 part.
Water (distilled)	8 parts.

Filtered and used soon after mixing.

This gave good orthochromatic effects, but still a liability to fog and spots. The liability to fog was got over by reducing the ammonia to one-half, and the orthochromatic effects were not perceptibly reduced by reducing the cyanine also to one-half, but there was still a tendency to spottiness. After a series of experiments the following system of working was adopted. The solution was made up as follows:

Cyanine solution (as above)	1 part.
10 per cent. ammonia	½ part.
Water	8½ parts.

The plates were dipped for two minutes, then washed under a stream of water for about ten seconds, the surface being wiped with a tuft of soft cotton-wool at the time. The plates were used both wet and dry, but the best results were got with dried plates.

It may be worth mentioning that we tried both pure bromide plates, plates with a little chloride as well as bromide, and plates with iodide up to as much as three per cent. of the whole haloid present, but that we did not find that the iodide had the detrimental effect commonly attributed to it. In fact, the presence of moderate quantities of either chloride or iodide did not seem to have any effect at all so far as orthochromation was concerned.

Now as to the working of the plates, it was found that, without any screen, and working in white light, the yellows and reds were very fairly rendered, all except the deepest reds, but these showed rather too dark, and the blues still showed much too light. The sensitiveness of the plates was increased by several things.

An aurine screen, a little darker than a lemon color, had the effect of giving all colors—with the exception to be hereafter mentioned—in what appeared to be their really true values, these colors including various different reds and blues, as, for example, vermilion and Prussian blue. The exposures with the screen were from two to three times those needed for the plates before treatment.

The exception referred to above is that of green. Although the greater part of the green is absorbed, the sensitizing effect for green is not very great. Still, with the yellow screen the green is much improved, because the plate is rendered generally more sensitive, and the screen, cutting off the blue, does not cut off any appreciable amount of green, whilst it allows the exposure to be considerably increased. Thus the green of pigments is not rendered nearly so black as with an ordinary plate. Still, we found the effect to be barely appreciable in the case of landscape,—that is to say, as concerns the greens. The difference between some landscapes taken with ordinary plates and those taken with cyanine-stained plates and a yellow screen is remarkable; but it shows almost entirely in the sky and in the distance, which are much improved. The improvement in the foliage is but slight.

Whilst on the subject of color-screens, let us endorse the opinion of Captain Abney, expressed at the Photographic Convention some years ago, that the use of a yellow *light* is much to be preferred to that of a yellow screen whenever it is practicable to use the former. Yellow screens must inevitably interfere with the optical qualities of a lens, whether they be collodion films or glass plates. There is a general impression concerning the former that, because they are very thin, there is not the effect of two reflecting surfaces as there is with glass. This impression is a mistaken one. The definition and brilliance of image are degraded just as much by the thinnest collodion film as by a sheet of flat glass. The only difference is that, on account of the thinness of the collodion film, and of the fact that the two sides must be practically parallel, it is not of much consequence whether it is flat or not. Collodion films have one disadvantage. After a little use they are almost certain to get more or less roughened,—to lose their surface polish, in fact,—and after this they are useless.

There is not this latter objection to glass; but, as has often been pointed out, it is necessary that the glass be really "optically ground," or it will certainly damage the definition of the lens; and even if optically ground the two additional reflecting surfaces tend to lessen the brilliance of the image. Moreover, we have seen so-called "flat" glasses, ground by the best opticians, that were not really flat, but quite perceptibly lenticular. This would, it is true, do no harm were the image focused after the yellow screen had been adjusted; but the lenticularity of the screens we refer to was quite sufficient to put an image out of focus, if the screen were fixed after the focusing had been done.

For landscape work yellow light cannot, of course, be secured; but for the copying of pictures—for which orthochromatic plates and especially cyanine-stained plates are most useful—it always can, and a yellow-colored light does not interfere in any way with the optical properties of a lens, or rather, we should say, does not *appreciably* interfere with the properties. The effect of using a lens corrected in the ordinary way for orthochromatic plates with a yellow light must be that the lens works as one *slightly* over-corrected. It would be interesting to try whether some of the older forms of lenses - especially portrait lenses—which were purposely left slightly *under*-corrected, would not serve for orthochromatic photography without special adjustment of the camera, such as is necessary in using them for ordinary photography.

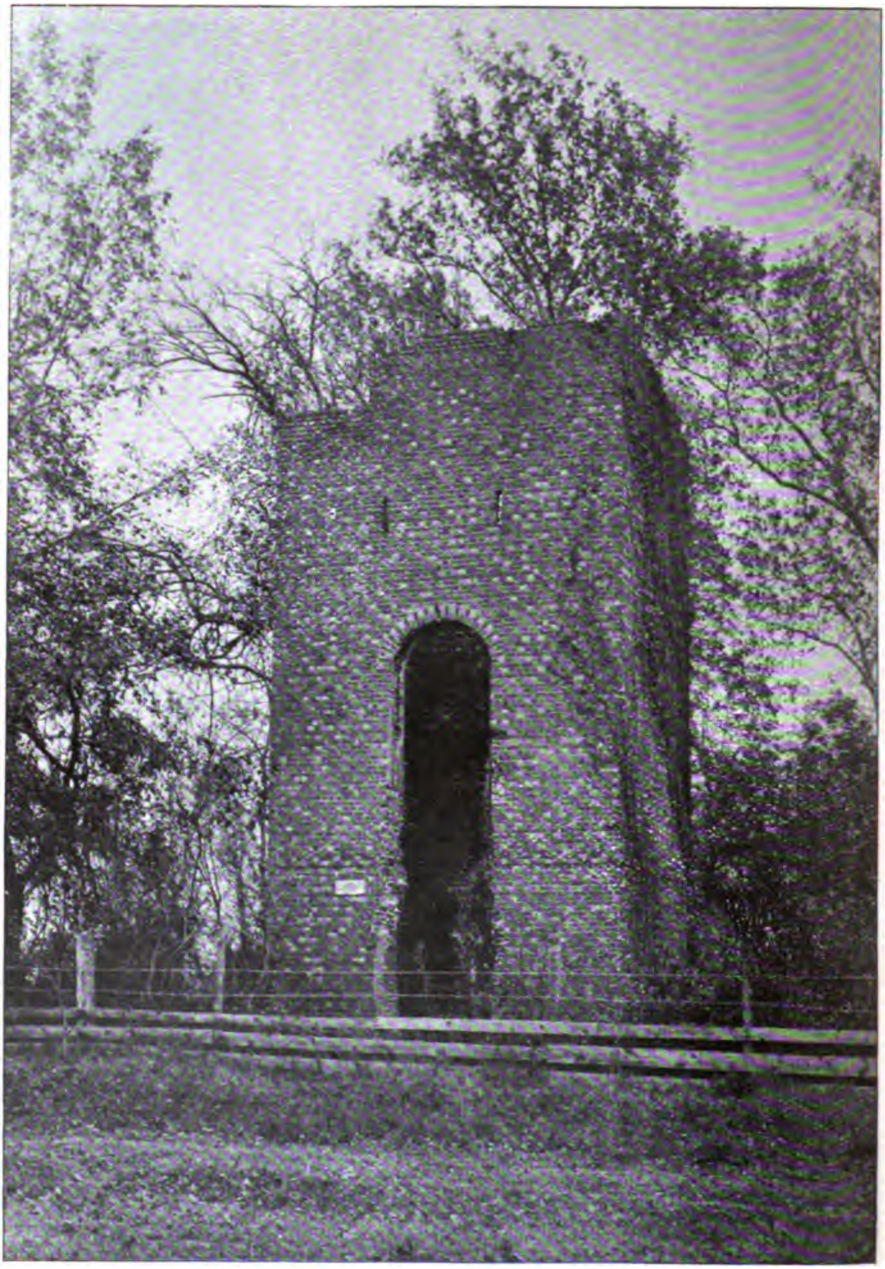
A yellow light is very easily arranged for copying paintings. In the first place, the yellowness—it is really, of course, feebleness in blue light—of ordinary gas or lamp or incandescent electric light is sufficient, and the sensitiveness of orthochromatic plates to yellow is such that the exposure to artificial light is not at all extravagant. Thus, using two fairly large paraffin lamps, placed about two feet to three feet away from a picture, one a little on each side, and with the direct light, of course, shaded from the lens, we have found exposures of ten minutes ample with stop No. 16 U. S. If we were copying paintings systematically we should decline to make all our exposures by artificial light, fitting up a special gas arrangement. Hereby one element of uncertainty, namely, variation in the intensity of the light, would be eliminated. The light of the particularly bad gas supplied by the London gas companies is peculiarly well-suited to act as an illuminant for orthochromatic photography.

It is easy, if daylight be preferred, to cut off the greater part of the blue light by covering the glass of the studio, or of the windows of the room in which copying is done, with light yellow-colored tissue paper.

We have found it necessary to use a *very much restrained* developer with cyanine-stained plates to get good results. The developer should be restrained to such an extent that ten to fifteen minutes are necessary to gain density. On the whole, we think that cyanine is a most useful sensitizer for plates to be used in copying pictures, especially those in which warm tints much prevail; but that it is not to be recommended for landscape work. Better results can be got with erythrosine or eosine-stained plates, and these are much less trying to work. W. K. B.

A PRETTY story of Baron Rothschild and his amateur photography is given by the *Daily News* correspondent at Vienna, as current in that capital. The Baron had found a good point or view half-way up one of the hills rising above the valley of Cortina di Ampezzo in the Tyrol, and arranged his apparatus, ensconced in the black velvet covering which is such a conspicuous item in the photographer's outfit. When he emerged, a fat couple stood before him, whose dialect immediately showed them to be well-to-do Berliners. The husband promised he would pay the photographer handsomely if he consented to take their portraits with the background of Monte Cristallo or the Antelao for the uncles and aunts at home. Baron Rothschild, highly amused at the self-sufficient tone of his would-be patron, said his apparatus was for landscapes only; but this was pooh-poohed by the Berliner, who knew better, and gave his name, adding that he was a banker who could pay for his caprices. Baron Rothschild no longer resisted, and repressing his laughter when the fat lady arranged her dress and put on her sweetest smile, took the portraits. They proved a success, and the Berlin banker gave strict injunctions that he must have at least four copies by noon the next day, as he had fixed his departure for that hour. On the following day one of Baron Rothschild's servants took the photographs to the Aquila Nera, where the Baron's autograph on the beautiful portraits standing out in bold relief against Monte Cristallo created a sensation.

THE EFFECT OF BRIGHT LIGHT ON THE SENSITIVE CENTRES OF THE ORGANISM.—A curious phenomenon was observed at the end of the annual concert given at the Salpétrière Hospital, Paris, by the Lionnet Brothers, assisted by a great number of artists. The concert over, M. Londe, director of the photographic service of the hospital, wished to "take" the audience hall. For this it was necessary to burn a strip of magnesium. The blinding light, although it lasted but ten seconds, threw several of the patients into a cataleptic state. The effect of light, however, on highly-sensitive persons is known. It is in this manner that, at the Charity Hospital, Dr. Luis acts on his patients by means of the luminous reverberation produced by revolving mirrors.



THE OLD TOWER ON JAMESTOWN ISLAND, VA.

Negative by
Dr. J. T. Rothrock.

Ives Process,
Crosscup & West Eng. Co.

OLD TOWN[illegible] ON [illegible]

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Colonel Brown who now owns Jamestown Is[illegible] at credit [illegible] efforts to preserve the town and its associations. [illegible] do a[illegible] the Goths and Vandals who desecrate such spots?

The very island is washing away. It is probable that [illegible] the waters of the James one might [illegible] relics of the early settlement than [illegible] the island. Even the old magazine [illegible] a few years ago was still in partial preservation, has been undermined by the [illegible] and is now practically gone. DR. J. F. ROTHROCK.

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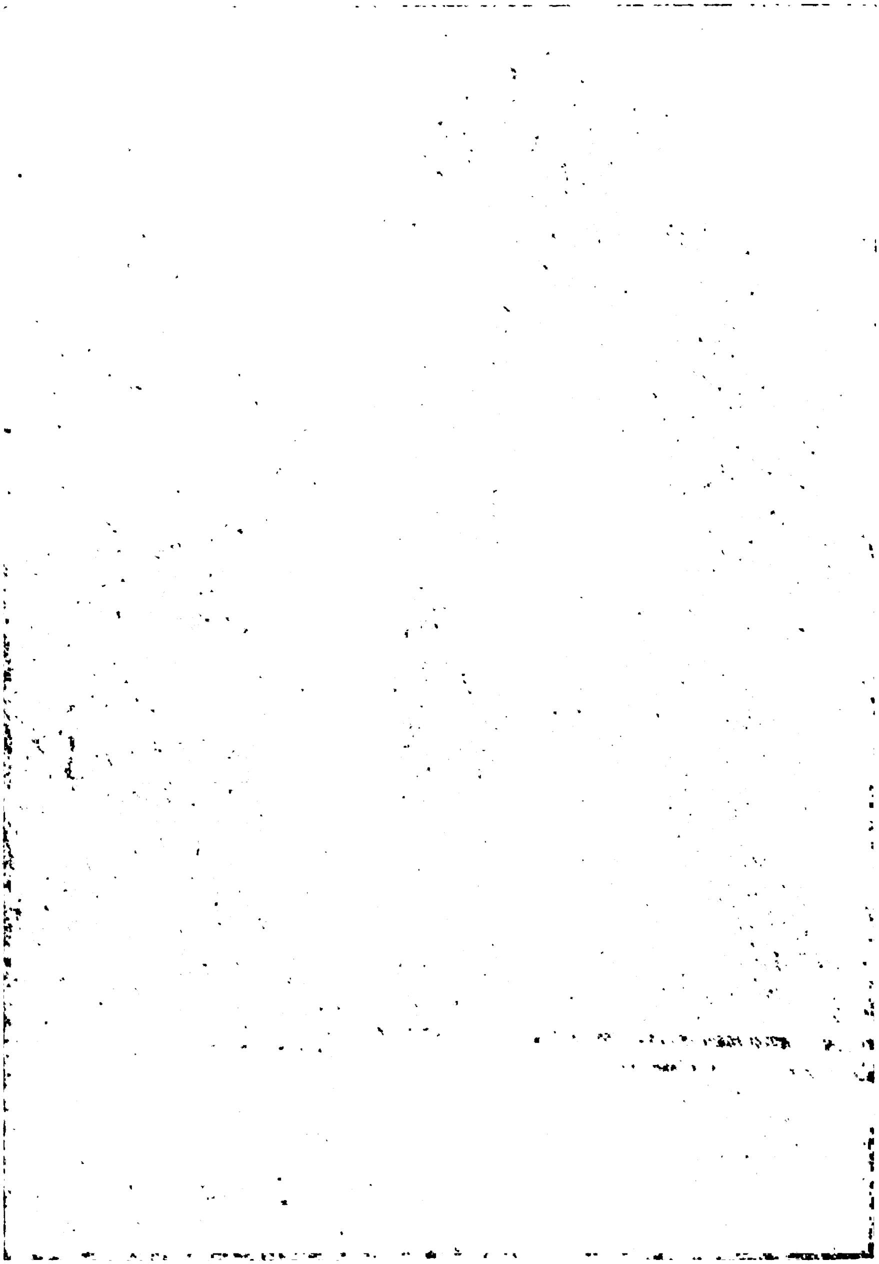


THE OLD TOWER OF [illegible] VA.

NEGATIVE BY
DR. J. T. ROTHROCK

IVES PROCESS,
CROSSCUP & WEST ENG. CO.

OLD TOWER ON JAMESTOWN ISLAND.

IN more senses than one this is a new world in which we live. A few centuries, at most, embrace all that we have of reliable history. Nowhere do we dig down to uncover an ancient city, and find a still older one beneath its ruins. We have not even a single poor baronial castle to lean a family escutcheon against. But while we have a dearth of ancient history, we are not absolutely without some hoary material. We have made a start in collecting it, and, like other people, we must accumulate more as time passes.

The ruins of the old Roman Catholic church built nearly nine hundred years ago in Greenland by our Viking relatives still remain, and on the bleak shores of Labrador are yet found the remains of the town of Brest, which exactly a century before the Pilgrims landed on Cape Cod had a population of one thousand souls. These represent periods in American history which are none the less interesting because they are ignored and almost forgotten.

Passing by the Newport tower, with its doubts, fables, and romances, there still remains to us the tower of the old Jamestown Church. This is found on Jamestown Island in the James river, some thirty miles above Newport News. Of the early settlement there that alone exists. The illustration shows its present condition. The house now occupied by the owner of the island, though old, is probably considerably later than the tower in date of construction.

The Jamestown tower is built of bricks, red and black in color; alternating after the fashion of those early days. It is most likely that they were imported from England.

Tradition says that the tower was erected in 1609. This, however, can hardly be so. We know too well that a colony which was notoriously wanting in laborers and in mechanics could hardly have built a church so large and pretentious as the one to which this tower must have belonged. Indeed, we have the historical statement that the original church, the one in which Rolfe and Pocahontas were married, was of logs, and I am not sure but that a statement still remains as to its exact size. So far as can be decided, it is most probable that this tower was erected not earlier than 1640. Indeed, there is a suspicion that the earliest settlement was not on this, the western, but on the eastern end of the island.

However, let us venerate the old structure. It is undoubtedly among the oldest of our ruins. It is unfortunate that the State of Virginia has not exercised a protectorate over this sacred spot. It is not less worthy of jealous care than the surroundings of Plymouth Rock. In all kindness we say, it is something of a shame to that State that she has cared so little for Jamestown and the old Westover cemetery. These places have associations quite too large for mere private holding.

Colonel Brown, who now owns Jamestown Island, deserves great credit for his efforts to preserve the tower and its associations. But what can one do against the Goths and Vandals who desecrate such spots?

The very island is washing away. It is probable that under the waters of the James one might find more relics of the early settlement than on the island. Even the old magazine, which a few years ago was still in partial preservation, has been undermined by the river, and is now practically gone. Dr. J. F. Rothrock.

CERAMIC PHOTOGRAPHY.

ONE of the questions that frequently arise in the minds of those who have noted the rise and progress of the photographic art in its different phases, is why ceramic photography is so much neglected. Most good processes, and this is certainly one, advance with time, though with this particular one it may be said that it is less practiced now than it was formerly.

Yet there are many directions in which its use might might be extended, and very profitably too. Hitherto ceramic photography has, for the most part, been associated with portraiture. As early as the fifties, M. Lafon de Camarsac was in the field with burnt-in portraits on enamel; a very little later, Mr. Jonbert showed excellent work of a similar character, as well as some capital photographs vitrified on glass as transparencies. And it must be confessed the work done at this early date has not been surpassed.

Ceramic photography is not difficult, neither is it expensive, nor does its practice entertain any expensive outlay for plant.

With the exception of a muffle furnace, no other apparatus is necessary beyond what is found in every photographic establishment. A gas muffle, even for large sizes, is by no means an expensive affair.

As we have just remarked, those who have given attention to vitreous photography have confined their labors chiefly to portraits, and those principally of small dimensions, such as miniatures for brooches, lockets, etc. However, much larger work, and very good too, has been producedon plaques and tiles up to twelve inches or more. It would appear that ceramic photography is more extensively worked on the continent than it is here, if we may judge from the fact that many photographers who supply burnt-in photographs send the negatives abroad, and have the work executed there by those who work for the trade.

Portraiture would, however, probably be but a minor application of burnt-in photography if it were introduced with vigor in several other directions. Amongst others may be mentioned art decorative purposes. Vitrified copies of paintings on plaques and tiles would no doubt, be extensively used in decorating where tiles of a more or less common description are now used, if they were forthcoming.

Photographs might also be largely utilized in the embellishment of articles in every-day use. What would be more *recherche* than, say, a dinner, dessert, or tea service ornamented with artistic views, or with copies of well-known works of art. With copies of paintings the precise touch of the different artists would be preserved, which is not possible with any other method of reproduction; while with photographs from nature the finest possible detail would be secured,—a quality sadly wanting in the views generally seen on pottery.

It is often asserted that the general public have no taste for copies of paintings; but this, we think, is totally disproved by the large sale cheap copies of them on opal glass have had during the last year or two. By the way, if these pictures had been vitrified into the glass, the majority of them would now be in a far different condition from what they are.

Ceramic photography ought to find extensive employmment for window decoration.

Just now there is quite a rage for ornamental windows made up of small panes of stained glass.

Why should not, in place of some of these, photographs—which, it is needless to say, can be produced in any color—be introduced? Of the effect there is no question, and there is little doubt that if once introduced commercially a good demand would soon be created.

With regard to the methods of production, there are several available, each of which is capable of yielding equally good results.

There is the substitution process, though with this variation in color is somewhat limited. There is the dusting-on or powder process, by which any desired color can be obtained; indeed, with it several colors—if of the same fusibility—may be employed in one picture by applying them singly to the parts required, while carefully protecting others.

Then there is the "Carlon" process, in which vitreous pigments are used in place of the ordinary ones.

Photo-mechanical processes may also be utilized in ceramic photography. A collotype print in vitreous colors can be transferred to the ware, and its strength reinforced by dusting on more color, which will adhere to the ink while it is moist. A large proportion of the designs on china and earthenware are printed from copper plates on a gelatine surface and then transferred; and there is no reason why photographically engraved plates should not, for the best work, take the place of hand-engraved ones.

Without doubt there is a good future for ceramic photography in directions in which it as yet has not been turned to any real practical account. But who will take the initiative?

Will it be photographers, or the potters and glass-stainers?—*British Journal of Photography.*

TOMBSTONE PHOTOGRAPHY.

SEVERAL communications have lately appeared in our British exchanges on the above subject, as to the best means of overcoming the difficulties experienced in this branch of photography, notwithstanding how simple the process appears at first sight, or to those who have never tried it. One of the subjects mentioned in our British contemporary was a yellowish kind of granite, with the letters cut in and gilded. As there was little or no contrast between the stone and the gold, together with the inexperience of the photographer (probably an amateur), the plates resulted in failure, as the lettering did not show distinctly. Notwithstanding that orthochromatic and ordinary plates were tried in strong sunlight as well as dull light, the result was always the same. The advice given to overcome the difficulty was to make common whiting into a stiff paste with water, and then fill the letters in with a small palette knife; when dry, photograph. The result would be an excellent white inscription on a dark ground. Another correspondent, in a subsequent number, states that his plan is to take a small knob of whiting, place it in the palm of the right hand and pass it over the line of letters to to be filled, using considerable pressure, —enough, in fact, to crush the whiting as it goes into every crevice of the letters.

Then this wiseacre states that you have only to pass a cloth gently over the surface to remove any dust, and take the photograph. He then goes on to say that in case of white tombstones "dark chrome" should be substituted for whiting. So much for experimental theory. It is not necessary for us to state that the resulting negatives would not be a photograph of the tombstone as it really is, but it would look like a flat surface the shape of the original with coarse letters chalked upon it, and certainly not what it was the intention to portray.

The writer, who has probably had as much experience in this line of photography as any other person in this country, acknowledges that the subject is always a more or less difficult one if it is desired to obtain a legible inscription, no matter whether the stone is a fresh white marble, a cold grey granite, or an old crumbling memento of slate or soapstone, with its skull and cross-bones and "memento mori," weather-beaten and overgrown with moss and lichen. The same difficulties seem to exist to bother the amateur. We acknowledge that at first we had some failures in this special line; but we soon learned to set our camera a little to the side, according to the light, and not directly in front of the stone; result, a legible inscription all the time. This is accounted for by the fact that in sunken (V-shaped) letters one side is usually illuminated a little brighter than the other, except when the sun is directly in front or overhead. So we point the lens towards the brightest side of the sunken letters, and achieve our object where it would be almost impossible to get a good inscription if the camera were set up directly in front of these subjects.

In photographing old historic tombstones of discolored marble, blue slate, grey soapstone, or reddish sandstone, when the inscription is almost illegible, we have frequently resorted to marking a line with our lead-pencil in the middle of the furrow of the sunken letter. Even where the stone was disintegrating and covered with lichens, the single pencil-mark seemed to bring out the whole contour of the letters, and thus save the inscription. This plan has the further advantage that it would be permitted in almost all cases, where such a proceeding as advised in our British exchange would not be tolerated for a moment.

J. F. S.

DEVELOPING SENSITIVE PLATES IN FULL DAYLIGHT.—According to a patent recently taken out in England, it suffices to add to each pint of the developer, preferably the hydroquinone developer, one ounce of the following solution:

Water	24 parts.
Alcohol	24 "
Aurantia	16 "
Carmine	8 "

Which is shaken until complete solution, and afterward filtered. It is needless to say that the plates should be transferred from the frames to the developer in a place free from actinic light. Afterward the development may be followed in daylight without fear of fogging.

WORSE THAN SHARKS.—*Texas Siftings* says that there is something at the seaside this season worse than sharks. It is the amateur photographer, with his tripod and camera.

ARTISTIC BLUE PRINTS.

THE end of the summer's wanderings, camera in hand, in field and forest has come, and, with negatives all developed, the amateur's thoughts turn to the vexed question of printing. In these salad days of photography he has a wide field of choice. For his own collection there are the albumen, platinum, and bromide papers ; but these are rather expensive methods, and hardly feasible for the large number of gift pictures which one likes to send to friends.

Here the blue print holds the field on the score of cheapness, and, when properly done, for delicacy and beauty as well. For some years I have been in the habit of making up a large number of blue prints for holiday gifts. These have all been made directly on the cards, doing away with the trouble of trimming and mounting ; and with the addition of a plate-mark to give them a finish, they are all one could wish for the purpose for which they are used. Almost any good surface card-board answers well. I am in the habit of using two or three-ply bristol board, which seems to produce a richer blue than most other card-boards.

Any of the numerous formulas may be employed for sensitizing without much affecting the final result. My own formula is : Red prussiate of potash, sixty grains, water, one ounce; ammonia citrate of iron, one hundred grains, water, one ounce. The potash solution may be mixed in quantity, as it keeps well, but the iron solution should be mixed only as wanted for immediate use ; the two solutions are mixed in equal parts immediately before using, and are applied to the cards with a Buckle's brush, which is nothing more than a piece of white cotton flannel, doubled and bent over the end of a strip of glass and held in place with a rubber band. The ribbed side of the flannel is the one to use. In default of this, a soft sponge may be used.

The solution is evenly applied, care being taken to avoid streakiness by not having the brush too wet and by brushing lengthwise and across the cards. The sensitizing may be done in subdued daylight. The cards soon dry, and are then ready for exposure.

As every one knows, the best negatives for blue prints are those which we call plucky. None of the iron processes take kindly to thin negatives, and it is well to bear this in mind when selecting the negatives from which to make blue prints. The cards should be somewhat larger than the negatives, in order to leave a liberal margin of white card around the print. I use eight-by-ten cards for all sizes up to the whole plate. The printing-frames must be as large as the cards, and provided with glass fronts. In order to protect the margins of the cards and insure their washing out, white masks of opaque paper, cut the same size as the cards and having a central opening the size of the print, are placed over the negatives, which are laid in the centre of the printing-frames.

After printing, until the shadows are deeply bronzed, the cards are thoroughly washed, in order to prevent subsequent yellowing of the whites. Before they are quite dry the plate-mark is put in. For this purpose a sheet of hard card-board is cut slightly larger than the printed portion of the cards, sufficient to leave a good half-inch margin around the picture, and the corners are slightly rounded off.

Thin sheet brass is better if much work is to be done, but the hard card-board answers fairly well. The proper position for the plate-card is easily ascertained by laying a piece of glass of the same size over the picture, and marking or scoring the two upper corners with an ivory paper-knife. The glass form is then removed, and the plate card put in place. The print is then placed on a piece of thick felt, the plate-card is covered with one or two thicknesses of blotting-paper, and the whole put under a letter-copying press for a minute or two. When removed from the press the print will be found to be surrounded with a mark closely resembling the plate-mark seen in copper-plate engravings. When dry the prints are ironed or run through a burnisher to straighten them.

A very good substitute for embossing may be given to the margins outside the plate-mark by cutting out an opening, corresponding in size to the plate-card, in a sheet of coarse sand-paper. After removing the plate-card from the print, the sand-paper is carefully adjusted in place, and the pressure is again applied, thus producing indentations in the margins of the cards which at times have a very pleasing effect.

Three or four of these prints, bound in a cover of water-color paper by punching a hole in the upper left-hand corner and tying a bit of ribbon, make a very pleasing and inexpensive birthday remembrance for a friend, and reflect no discredit on the taste of the maker.

There are many other charming applications of the idea; but they must wait for a subsequent paper for description.—W. H. B., *in American Amateur Photographer.*

THE EFFECT OF RETOUCHING ON THE EYESIGHT.

THE greater danger to be apprehended by retouchers is the straining unknowingly of the accommodation of the eye too severely. Every photographer knows the effect of a diaphragm in a photographic lens, how it makes objects really out of focus appear sharp and distinct on the focusing screen. In retouching the eye is provided by nature with a very small diaphragm, which enables the worker to see details of his negative when his eye is fairly close to it, though ordinary print could not be read at that distance.

The brighter the light the smaller the diaphragm (or, in other words, the pupil of the eye), such is the wonderful character of this natural diaphragm; and so the retoucher may wield his pencil at a distance at which he could not see distinctly if he were working, say, on a piece of drawing-paper, and thus he daily strains its powers. The older a man gets the further from his eyes does he need to hold an object to see it distinctly. But if he obtain a pair of spectacles he can see plainly, although he bring the object nearer again,—the stronger the glass the nearer. So with retouchers, when their eyes feel strained, if they work too close to the negative, let them wear spectacles. It is, unfortunately, so often said: "Don't use spectacles,—you'll get so used to them that that you cannot do without them;" but the remark is absurd.

If spectacles are once needed it cannot be expected that the eyes will of themselves go back to their original condition; but it is false to imagine that optical aid will cause the eyes to change more rapidly than when such aid is not made use of, and equally false is it to believe that carefully-selected spectacles will injure the vision.—*British Journal of Photography.*

ALBUMEN PAPER.

READ BEFORE THE PHOTOGRAPHERS' ASSOCIATION OF AMERICA.

WHAT can be said of Albumen Paper,—that long-suffering, ill-used servant of the photographer? How often has it been abused in the columns of our periodicals; how often do we hear the cry that it does not fill the requirements of the photographer; and how often have the manufacturers endeavored to displace it in public favor by the introduction of collodion and gelatine papers.

Notwithstanding that albumen paper has long outlived its infancy, it is still subject to many diseases incident to childhood, namely, scarlet-rash, measles, spotted fever, and eruption of the skin, etc., and then the many cases of general debility and weakness, that impure, impoverished condition of the blood, producing the distressing malady-blisters, which are the worst of all, and by far the most difficult to cure. All this may be true, and yet I know of nothing more amenable to kind treatment than albumen paper.

It will not be necessary to go into the particulars of its manufacture,—they are too well known. In fact, nothing that I can say is entirely new. The whole story is something more than a "twice-told tale." With the full knowledge of its manufacture, and with the instructions given in the standard text-books, it is difficult to understand why so many complaints appear in the columns of our magazines. One cannot run through a copy of any one of our photo journals without meeting subjects with such titles as, "How to Prevent Measles," "How to Prevent Blisters," "What I Know About Blisters," etc.

A photographer from Texas, writing to a photographic journal, says that for ten years he has been trying to find a brand of paper that would blister under his treatment. Another reports, in the next number of the same magazine, that all the brother has to do is to come over to this country, and he will be seeking a brand of paper that will *not* blister. One will advocate plenty of alkali all through the manipulations, and a weak hypo-bath, with about an ounce of strong ammonia to each gallon of solution,—and defies blisters. Another says, not so much ammonia, and a strong fixing bath. One suggests from thirty to forty minutes. One writes that the water is so hard in his locality that he can't do anything with his prints in toning and fixing unless he first softens the water with more lime or ammonia, and that his prints were covered with a white deposit, which he cleaned off with acid solution after they were fixed and washed.

It is not my purpose to enter into any argument as to the best method one should employ in the production of silver prints on albumen paper. Any of the methods given in our standard text-books are thoroughly reliable, and the mere fact of their being published in these books is a sufficient guarantee of merit. Therefore, this being the case, it simply resolves itself into the manipulation and the working. There are certain rules to be observed, namely, cleanliness and an attentive regard to the condition of the chemicals and weather; this done, the intelligent printer is prepared for any emergency, and watches the barometer very much as the physician would the pulse of his patient, and guards against the varying conditions of the temperature, and thereby prevent the ills so much complained of. A little experience and observation will soon teach him that red measles indicate weak silver, or a not over-strong bath and insufficient fuming; that black measles show that his paper is insufficiently dry before fuming; that rusty brown printing means an acid condition of the silver solution, or a bath very much clogged with impurities, albumen, etc. These two faults will also produce red measles. (At a time like this the bath must be renovated by evaporating and sunning.) That print which comes up hard and blue, lacking brilliancy, and with a crackling appearance, indicates a very alkaline condition of the bath. Albumen paper will take up the silver solution more readily and evenly, if it is previously dampened in a box built for the purpose, than it will in a dry condition. When it is slightly limp, the tendency to tear in cold weather will be largely overcome; but this will not occur if the sensitizing room is kept at a uniform temperature of seventy degrees. Again, prints bronzed too deeply, even in the light shadows, indicate too much strength of silver, and will also produce measles of a peculiar kind, owing to the lack of silver absorption in the sheet of paper.

Do not forget that strong silver has a coagulating effect on the albumen, and that the paper must be floated sufficiently long to permit the complete saturation of the albumen film. If this is not done the effect will be much the same as when the silver is weak. In toning, the intelligent printer will learn that in those prints which evince symptoms of measles the disease will develop with frightful rapidity, and that the prints are forever ruined. He will observe that the rusty brown prints cannot be improved in toning.

He will also have cause to remember that prints which indicate excess of alkali will, ten chances to one, soften in the toning-bath, and the surface is likely to rub completely off; and that a too rapid action of the chloride of gold will cause a precipitation of the metal in the form of minute red spots. In such a case common salt, added in small quantities, will act as a restrainer. Any one can hinder the toning by too much salt or too much soda, and also thus assist in softening the albumen causing the blisters. All these things will teach the printer that in no case are extremes of strength or weakness, akalinity or acidity desirable; and that the sure road to success is in the "happy medium" path. Now we must refer again to the diseases of the blood, namely, blisters.

We all know that strong acids and strong alkalies possess a wonderful affinity for soluble matter, and that for which the acid has no liking the alkali is sure to have a deep regard.

There are few things beyond the reach of both. Therefore it follows that, if any substance soluble in acids or alkalies is subjected to the action of acid or alkali solutions sufficiently long, a complete disintegration of the particles will take place. So it follows that a silver-bath, made strongly alkali, starts up the action of dissolution in the albumen sheet which is supplemented by heavy fuming, carrying on the action still further, and by the time it reaches the toning-bath the albumen is quite ready at times to part company with its support. In some cases the whole surface is affected; in others, in spots only. On the other hand, a treatment in which there is too much acid will act in much the same manner. Here then, to my mind, is the cause of blisters in albumen.

The above statement being accepted as a fact, there will be no difficulty in avoiding blisters. Each worker must be influenced by the condition under which he labors. If he is located in a district where the water he is obliged to use is about normal, we may say, then there need be no difficulty in keeping in the middle path. On the other hand, if he lives in a district where the water is thoroughly impregnated and charged with lime and salts of magnesia, then he had best adopt the plan of working his chemicals slightly acid, and in some cases it may be necessary to treat the prints before toning with a bath of acetic acid water, thereby counteracting the evil influence of alkaline water. The actual cause, then, of blisters is the softening of the albumen film in spots that have been the most susceptible to the softening influence. This action has not been continued sufficiently long to effect a dissolution of the film itself, but has only acted in such a way as to loosen it from its support. Once loose, the water and air work their way through the porous back of the sheet, and consequently blister. If the effect has been produced through excess of alkali, one hardly wants to increase the evil by adding ammonia or soda to the hypo-solution. I doubt if softening is ever occasioned by extreme acidity. The prevailing idea is that everything should be worked in an alkaline condition ; therefore one would hardly look for acid in a case of blisters. As I said in the first place, it is not my intention to make a long argument, and I have dwelt upon the subject of blisters because I think they are the greatest source of trouble.

One other point is the stretching of the paper. This is an important matter, especially in portrait work; for unless the printer is careful to cut his paper all one way of the sheet, a curious assortment of fat and lean portraits will be the result. This is the only way to avoid the difficulty. It can be partially overcome by immersing in gelatine and alcohol ; but this, aside from the expense, would require too great an outlay of time for commercial work.

In conclusion, I would say that I have made no mention of any particular brand of paper, I believe that all the standard makes are good, and can be successfully worked by any of the ordinary methods, providing a proper amount of intelligence is incorporated into the manipulation.

JOHN R. CLEMMONS.

THIS is how our photographic exchange, *Lux*, of Amsterdam, renders one of our Yankee jokes in the vernacular of that country.

Vreemdeling (tot bediende in zulk een hotel) : " Het schijnt dat hier geen vergunning is "

Bediende : " Neen, Mijnheer, maar al onze kamers zijn voorzien van electrische schellen. U kan dus naar uw kamer gaan, en, indien U wenscht een ' Kodakgrogje ' bestellen."

Vreemdeling : " Een ' Kodakgrogje,' wat is dat ? "

Bediende : " U drukt op de knop ; wij doen het overige."

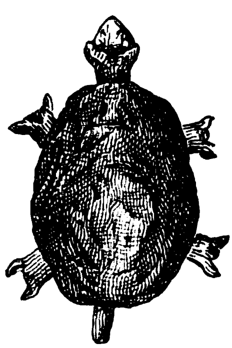
THE question of preventing or minimizing halation when photographing interiors with strongly-lighted windows is an ever-present one with the all-round photographer. The following communication from Mr. Thomas Earp on the subject to *Photography* may therefore prove not uninteresting. He says : " I have found that by placing a mask of suitable form in front of the lens, and in a direct line with a window or other source of light, and working with a larger stop than usual, thus utilizing the edges of the lens, halation may be minimized, and in many cases quite done away with. At fifteen feet from a window occupying nearly half of the wall space, I have thus succeeded in getting a picture nearly free from halation, and giving superior detail in dark corners."

AMATEUR EXPERIENCES, VIII.—AMPHIBIAN PHOTOGRAPHY.

[The *Testudinata cibeba* Snapp.]

MR. EDITOR:—A member of the Leopardville Camera Club has had a cruel joke played upon him,—I allude to our worthy vice-president, the deacon; and what is more, it is all your fault. It came about thusly. The September JOURNAL contained the illustrated paper on "Entomological Photography." At the next regular meeting of the club we made the subject the order of business, with the result that a number of us concluded to take the matter up and go into the caterpillar business; but as the season was already late, we did not have the result which we had hoped for. However, some practical joker, presumably a member of our club, yet with neither the fear of the law nor any respect for old age in his composition, conceived and executed a plan, which, although it was hard on our old friend, made up for our own failure. It was about a week before our regular stated meeting that a parcel was in the express office addressed to the deacon. It apparently came from Southern California, where he had some relatives. On opening the parcel it was found to contain several small turtles, carefully packed in cotton. There was also a neatly-written note in a lady's handwriting, which stated that the enclosed were specimens of an exceedingly rare *Testudinata trionyx* Linn., which were gathered in season by the natives and used as food, both in the fresh and dried state; also that the head, feet, and tail were dried separately, and frequently used by the better classes in connection with the "pulque" of the tropics; further, that in the East India Islands the heads and feet were gathered in large quantities for export to Europe, where they were sold under the name of *Dianthus caryophyllus*, and used largely in condiments and sauces; while in the Levant, on the Mediterranean, the drying and preparation of the bodies formed a special industry, and from whence large quantities, after being packed in ornamental fancy boxes, were sent to the various capitals of Europe under the name of "damascenercibeben." The letter cautioned the deacon from smelling or tasting the specimens, and closed with the suggestion that the deacon photograph the specimen so rarely to be seen its natural state, and bring the whole matter before the local photographic club.

That the recipient of the package was pleased does not express the situation. To say that his heart leaped with joy is drawing it mild. He lost no time in sending for the corresponding secretary, and begged for the use of our camera. The request was granted; and in a few days the negative was made, and the good deacon, whose mind was free from guile, devoted his time to the preparation of the paper for the meeting. At last the eventful night came. Every member had received an invitation from the deacon to be present. After the routine business was finished, our president stated that our vice-president would now favor the members with a paper on "Amphibian Photography," illustrated by prints of a rare specimen received from Utopia, in Lower California, and which was rarely seen in its complete state in this latitude; further, that the negatives, as well as the beautiful cyanotypes, were the work of the orator of the evening. After this introduction the deacon arose, and read an elaborate descriptive paper, based entirely upon the facts contained in the letter which was received with the parcel. He was listened to with marked attention and the respect due his age and position. After he was through the blue



Tes. cibeba Snapp.

prints were handed around, and he was congratulated from all quarters. A resolution of thanks was offered and unanimously passed. A motion was also made that the MS. and negative be sent to a metropolitan magazine for publication. Nothing could have pleased the old gentleman better. Little did the innocent old-soul think that all was but a part of a deep-laid scheme. The motion was seconded and carried without a dissenting vote. So far, so good; all was as well as the proverbial marriage bell. But this serene atmosphere was destined to be dispelled,—the cloud speck appeared. At this stage one of our members innocently (perhaps, in view of future events, with malice aforethought) ventured the suggestion that one of the original specimens be produced for the edification of the club. The deacon assented, and brought forth a little box, from which he took out one of his Testudinata carefully impaled on a large cork. This was passed around among the members. When it reached the one who had suggested the production of the original, he at once stated that the body of the rare "amphibian" looked suspiciously like a fine flattened raisin, and that the head, feet, and tail certainly reminded him of cloves,—in fact, they looked like cloves, smelled like cloves, felt like cloves, and would be found to taste like cloves, and that the artistic combination would be a credit to any lady superintendent of a church fair. That this statement caused a sensation is no name for it. The president rapped for order, the deacon was indignant, several cried shame, while others denounced the offending member for his irrelevancy. During the babel which insued a cool-headed member turned up the lamp so as to give a brighter light, and asked to examine the specimen. The interest of the lady members was especially excited, and they took a look at the specimen; when one, with the inquisitiveness of her sex, to settle the matter, caught hold of the head, and giving a slight pull, a fine clove was the result; a general laugh at the deacon's expense followed. The latter, however, was inconsolable. The fondest hope of his life had been that he would some day see his name in print as the author of an essay. The realization seemed to be within his grasp; but just at that very moment, like a veritable "will o' the wisp," it vanished as he thought he had clutched it. Nothing could induce him to think that he was the victim of a practical joke; he thought that some one had changed the specimen while it was being handed around; further, he saw nothing to laugh at. But the climax was reached when the member who had brought about the denouement asked whether *Dianthus caryophyllus* was not the botanical name for the clove, and "damascenercibeben" a German term for the finest imported raisins. The old deacon now commenced to see through the mist. Notwithstanding the expressions of sympathy from his friends, the old gentleman went home sad and dejected. Scientific photography had lost its charm for our worthy old member. After the deacon had left a motion was made that a committee of three be appointed to ferret out the perpetrator of the joke, and if it be found that he was a member of the club that he be expelled forthwith. Carried. Adjourned.

J. FOCUS SNAPPSCHOTTE.

P. S.—I am on the committee,—am afraid the task is hopeless, notwithstanding the number of "clues."

PHOTOGRAPHING CHILDREN.

THERE is nothing connected with the art of photography so pleasing to the artist as a successful picture of a pert little miss or a bold bonnie lad. Children generally drop into pretty and graceful poses, something so natural and life-like that it seems, and is, indeed, impossible for any artist to improve. However, no matter how graceful a pose may be, no matter how clever may be the expression, all may be spoiled and rendered unartistic by certain arrangements of dress or peculiar grouping of colors. The patient photographer cannot, *dare not*, tell an amiable mamma to take her bright little boy home and dress him so that his photograph will be a gem of photography, and a comfort and pleasure both to mamma, papa, sisters, cousins, aunts, and other relatives in whole. No; he must do the best he can with what is presented. So, kind mamma, or whoever is about to bring a child to the photographer, I give a few hints. If you will follow them, that is, so far as dress is concerned, and will leave the artist to exercise certain judgment in the way of surroundings in the picture, you will be pleased greatly with the results.

Never dress a child in velvets, unless of light-colored hues. Your bonnie boy may possess a most elegant green sack; but the poor artist feels like tearing his hair—and does when in his dark room—over the impossibilities of green to come out nicely in the finished photograph. Large stripes and checks in fabrics are *not* artistic. They detract from the sweet simplicity of the face and pose, and spoil the picture in general. Do *not* ask the artist to take a picture of your boy full length when he (the boy, of course) is dressed in knee pants. Boys' feet are proverbially large, and they loom up immensely when attached to a pair of slim legs clad from knee to ankle in stockings. Boys generally do not require such striking effects in photography as girls do; so, unless you desire a character picture of Jamie, Joe, Bob, or what not, dress him in quiet colors; and there is nothing so befitting a boy in a picture as gray or very light blues, browns, or some such mild hues. As for girls—and I now speak of little tots—you cannot improve your white soft laces and graceful clinging folds. Now, when I say this, I mean blondes. If your charming tot is a brunette, dress her in cream-colored or dark blue or brown. There are certain reasons for doing so which no one but the artist can tell. He has to manipulate certain chemicals according to various subjects, and when you present a blonde to him dressed in light he is well aware of the good things he alone knows how to do for you. As for babies in long dresses, they always are in white; but do not worry too much over *its* picture; for, if you swoop down upon the gentle morsel five or six times in a minute you spoil the baby's temper and the artist's. Let him alone; he has taken more baby pictures than you ever saw, and if he doesn't bring into practice his years of knowledge and skill he isn't a good artist. But I can assure you nothing pleases him like making a successful picture of a baby; so leave him alone to his own dear task, and I'll warrant you he will please you.—H. S. KELLER, *in Ladies' Home Journal.*

MISUNDERSTOOD.—Photographer: "I am very sorry, Miss, but the negative I have taken is no good."

Miss DeVere: "What is the matter with it?"

Photographer: "It is spoiled by over exposure."

Miss DeVere: "Sir!"—*Munsey's Weekly.*

A SYSTEMATIC METHOD OF COPYING ENGRAVINGS.

FOLLOWING up the idea of preparing lantern slides from engravings in books, as thrown out by Mr. W. Bloxham, we devote this article, in deference to the wishes of several readers, to describing means by which the leaves of a volume, even if a heavy bound one, can be kept flat during the process of photographing its engravings.

By the method about to be described only one adjustment of the camera is necessary, for when the focusing has once been made it remains good not alone for that engraving upon which the adjustment was made, but for any number of others of the same size which may be photographed in succession.

The principle of the arrangement consists in having a strong wooden frame, with an aperture large enough to show the picture clear to the edges. This frame is erected near one end of a board, not less than the frame in width, and of a length sufficient to admit of the camera being placed upon it at the required distance. The volume of engravings is opened, and the selected one is pressed against the back of the frame and held in close contact with it during the operation of photographing. This is the principle. We now enter into a more detailed description.

The frame must be an inch in width and well jointed at the corners. Its size must be determined by that of the largest book containing the matter to be copied that is likely to be used. For smaller books it will hereafter be seen that due provision has been made. This frame must be fixed to the base-board by its outer edges, and must be raised from it to the extent of about two inches. The object of this is to allow a half-opened book to lie or rest upon the base-board, while the other part is pressed against the back of the frame, by which it is kept quite flat for focusing. The book is, therefore, supposed to be opened at a right angle, the lower half of it being passed under the erect frame and supported on the base.

To keep the book in position it must be clamped temporarily to the frame. This is done by two small carpenter's handscrews, procurable at every tool shop at a cost of about a shilling each. One jaw of this is applied to the back of the book, and the other to the face of the frame, and when screwed tight the whole thing is held rigidly. These handscrews or clamps may be had of various sizes, and of course their selection must be determined by the weight of the book likely to be copied from, as this latter may range from a strongly-bound volume of the *Art Journal* to a single part of an octavo.

The camera is made to travel on the elongated table or base-board spoken of, and when the size and focusing have been roughly determined it is fixed to the board by means of the tripod-screw, and the focusing then finally adjusted by the means contained in every camera itself. The whole may then be lifted and placed on a table near the window, so as to have the engraving properly lighted.

When the focusing has been once done properly, it stands to reason that as the ground glass, the lens, and the plane against which the engraving is pressed are three constants, it will not be necessary to disturb the arrangements, as everything presented at the plane will be in sharp focus.

To accommodate books or prints of much smaller size than the largest which the frame is capable of holding, one or more loose inner frames must be provided like the holders or " kits " in a studio camera. These need not, however, be complete frames, as one having only three sides permits a better placing of a small volume. The main condition in their construction is that when such a holder or adaptor is used its back shall be flush with that of the main frame. This ensures all printed sheets, whether they are large or small, that are pressed in contact with erect frame being invariably in sharp focus.

The precise location of the camera can either be ascertained by trial or by the application of the well-known rule by which we shall close this article. But at starting let it be well understood that whatever the focus of the lens that is to be used, the camera must be capable of being expanded to twice that focus in order to copy a thing its own size, and if the camera will not do this then must a lens of shorter focus be got.

The rule for reducing a picture is this: Having ascertained how many times an engraving exceeds in dimensions the negative to be taken, add one to the number of times and multiply by the focus of the lens, to show the distance at which the negative must be from the lens. The distance between the lens and the sensitive plate is found by dividing the product above given by the number of times one is larger than the other, the quotient giving the distance. As the lenses employed for such purposes may vary from 4 inches to 6 inches in focus, we shall give a few examples. With a lens of 4 inches focus, and a reduction of two times, the figures representing the distance between the engraving and the lens on the one hand, and the sensitive plate and lens on the other, will be respectfully 6 inches and 12 inches. If the reduction is three times, the distances will be 5¼ inches and 16 inches. For a 5-inch lens for a reduction of two times, it would be 6⅔ inches and 20 inches. For a 6-inch focus lens, the two or three times would be respectively 9 inches and 18 inches, and 8 inches and 24 inches.—*Optical Journal.*

SHOULD THE PHOTO-ENGRAVER RANK WITH THE ETCHER?

THE art of photo-engraving has arrived so near to perfection that it is next to impossible to distinguish a photogravure from an etching. With this state of affairs existing it is not remarkable that it has become necessary to define the position of an etcher and of a person who reproduces art works by photo-mechanical means. This interesting, and it may be added, important question is very thoroughly discussed in the current number of the *Magazine of Art*. The discussion was precipitated by a recent article in the *Portfolio*, in which Philip Gilbert Hamerton, in the course of some remarks on Joseph Pennell's book on "Pen Drawing," states: "If I make a drawing with a pen, using Indian ink on bristol board, M. Dujardin will make a plate from my drawing which is really an etching, for he has bitten it, and it will be better plate than I could bite myself, on account of his wonderful skill."

The editor of the *Magazine of Art* finds that Mr. Hamerton followed up his statement in a newspaper with these words: "It would, therefore, be perfectly legitimate to call photogravures 'etchings,' if only it were clearly understood that the drawing was due to the draughtsman, and the biting to the engraver." Again, in the *Portfolio*, Mr. Hamerton said: "Critics are afraid of seeming ignorant if they call heliogravures etchings. Of the two titles it is the word heliogravure which is inaccurate. The result is not merely something that looks like an etching. It *is* an etching."

So much for Mr. Hamerton. Now the *Magazine of Art* defines the two processes. "Etching," it begins, "etymologically, of course, only means biting or eating; technically and commonly it means both the drawing and the biting done on the copper-plate by the same artist. The production of a photogravure is a very different matter. The artist makes his finished drawing exactly as he wishes it to appear in the print on paper. He may add washes to represent tones of printer's ink, remarques, rottenness, rice scratches, and anything he wants to put on it.

"The drawing is photographed. The negative obtained is photographically copied in the etching ground, or photographed directly on to it, and the copper under the lines can be laid bare by careful washing. From this point Mr. Hamerton says the process is exactly similar. But here we cannot agree with him. The original etcher not only has to enlarge every line, but bite it in as well. The mechanical reproducer has merely to sink his design a certain depth into the metal, as every etcher knows, a vastly simpler matter,—so simple, in fact, that even Amand-Durand will tell you how much it will cost per square inch, and almost the hour at which you can have the plate. Yet the result in his hands will be indistinguishable from that of the original etcher.

"The consequence is that unless this distinction is to be most carefully borne in mind, in a few years it will be absolutely impossible to tell whether a plate has been directly etched or mechanically reproduced. Artists, critics, and dealers can hardly tell the difference now, and the word of the man who made it will be the only guarantee of its genuiness." The article then proceeds to tell how easy it is for unscrupulous mechanical producers to reproduce Durers and Rembrandts in quantities. "Of course," the writer goes on, "these things can be done, and are done now; but we fear that Mr. Hamerton hardly realizes how, by printing what he has, he may have encouraged this deception. They should not be called etchers in the sense that would only confuse them with direct etchers; nor should their work be called etching if we wish any longer to preserve that art. They must either be described as some sort of photo-engravers, or a new name must be invented for them and for the art at once."—*Philadelphia Ledger.*

THAT ever-recurring question, the shock to the camera resulting from the impact of the instantaneous shutter, has again been recently dealt with by M. A. Goderus in the *Bulletin Belge.* This gentleman points out the consequences that must necessarily ensue from the cause in question,—how the front of the camera is liable to kick up when the objective is released, and to be knocked downwards when it finishes its course, and a variety of other results too unpleasant to mention. To read M. Goderus's paper one would think that to attempt to obtain a correct instantaneous exposure must be a perfectly chimerical project. Instantaneous photographs, and even occasionally good ones, are however obtained, M. Goderus notwithstanding. To obviate these evils, M. Goderus proposes to have the camera arranged on one stand and the objective on another, and to have them united by an india-rubber tube. This is very good, doubtless, from the theoretical point of view, but sometimes when one wishes to make an instantaneous exposure, one is in a hurry, and in such cases M. Goderus's arrangement would lead to profanity of language.—*British Journal of Photography.*

GENERAL NOTES.

OUR esteemed exchange, the *Photographisches Wochenblatt*, No. 35, of Berlin, thus comments upon our late caution to photographers about to visit the Fatherland, which has been copied in various journals at home and abroad, viz.: "We rejoice ourselves, that our newly article out of the 'teutschen Glashaus' also beyond the canal and the ocean, happiness excited has. He is with manifold gocose additions in English and American journals uptaken. One periodical appears entirely almost believed to have, that our fellow-laborer earnestly these propositions had made."

THE following two paragraphs are going the rounds of the English press:

"AMATEUR photographers are getting dangerous in America, if we may judge by a story which is told concerning some of them in a United States exchange. Hard up for 'something thrilling,' a party of amateur knights of the camera are reported to have set fire to an old beached steamship. The baymen were very naturally 'amazed at the audacity of the proceeding,' and the party were put to flight. Happily, enthusiasm in the photographic art, combined with lack of subjects, has not as yet led the amateurs of Merrie England to such extremes to gratify their ends, but if a mania for the making of 'thrilling' subjects in this way sets in, we may expect to read in the morning papers of 'The Burning of St. Paul's Cathedral,' 'Blowing Up of the Houses of Parliament,' or 'An African Lion Loose in the Strand,' the perpetrators of the acts being, not the Fenians, Invincibles, or Dynamiters, but 'a party of amateur photographers.'"

"PHOTOGRAPHERS should be very careful how they handle both acids and alkalies, and it may be as well to warn them particularly when opening bottles of ammonia in warm weather or warm rooms to direct the neck of the bottle away from them. In our own laboratory experience we once saw an accident which nearly resulted in the blinding of the victim through the spurting up of ammonia from an incautiously handled bottle, and now we learn that a somewhat similar mishap has occurred in Ooty (India), where Mr. Penn, a well-known photographer there, was opening a pound bottle of ammonia in the dark room of his studio, when the contents spurted up like a fountain in his face, damaging his right eye and blistering his tongue and lips."—*Ex.*

ANOTHER PROFESSIONAL USE OF PHOTOGRAPHY.—A marriage broker is said to being an excellent business in Bachmut, Russia. Anybody coming to Bachmut is sure to be met by this man at his hotel with the inquiry: "Sir, do you wan to marry?" The marriage broker carries an album full of photographs of people of both sexes who would not mind getting married. On each photograph may be found details concerning the social and financial standing of the person pictured. On his arrival at Bachmut, the broker visited every house of interest to him in his special line, and was kindly received everywhere. There are already many happy brides and grooms in the city to whom he points with pride as his customers. Bachmut is especially favorable for operations of this nature, it is said, as it contains many girls of good looks and fair fortunes.—*Photographic Times.*

IN Berlin there has existed since 1885 an institution for the purpose of instructing young ladies of the better classes in various branches of employment suited to enable them to earn an independent living. The school of drawing attached to the institution has recently been supplemented by the addition of a department for instruction in photography, which was opened on October 1. Instruction is to be supplied not only in the various printing processes, but also in retouching, and even in book-keeping,—in everything, in fact, which may qualify the "young ladies of the higher classes" to occupy situations in photographic establishments. Herr Schultz-Hencke, hitherto assistant in the Royal Technical High School, is to act as manager.

AUSFÜHRLICHES HANDBUCH DER PHOTOGRAPHIE. By Dr. J. M. Eder. Parts I., II. William Knapp, Halle a S. A new edition of Dr. Eder's well-known work. From the two parts received it gives promise of even greater scope than the first edition; but few readers will be able to form any idea of the enormous amount of labor expended in collecting, verifying, and arranging the material used in this work. This work promises to be not alone an encyclopædic work, but an exhaustive critical history from the earliest times to the present day. Never before has the early history of photography been dealt with in so thorough and scholarly a manner as in the present edition of Dr. Eder's work. Going back to the early days of Aristotle, he goes step by step until he reaches Kirchner, whose portrait we introduced to our readers about a year ago (AM. JOUR. OF PHOTO., Vol. X., pp. 327–334). Considerable space is also devoted to "gypanthia" (reproduced in fac-simile, AM. JOUR. OF PHOTO., Vol. XI., pp. 121–127), then passing on to Scheele, Priestley, and others, until Senebier is reached, an experimentalist of whom more deserves to be generally known. The work of Davy and Wedgewood is given due credit, the first number closing with the close of the eighteenth century. Section 8 of Part II. is an exhaustive chapter, which includes the period from "the discovery of photography in natural colors by Seebeck (1810), to the publication of the daguerreotype process (1839)," and contains much information, and it will no doubt prove a revelation to the photographic student. Part II. closes with the second chapter, which deals with "the discovery of heliography and daguerrotypy by Nicéphore Niepce and Daguerre, with a survey of the advancement in photography up to the present time." It is stated that the work will be completed in about forty parts. If all the parts are as conscientiously and carefully prepared, the work will stand without an equal in photographic literature, and should be on the shelves of every public library, as well as in the hands of every photographer, amateur as well as professional, who is conversant with the German language. We congratulate Dr. Eder, and wish him success.

ADHESIVE PASTE.—A paste which will stick anything is said by Prof. Winchele to be made as follows: Take two ounces of clear gum arabic, one-and a-half ounces of fine starch, and half an ounce of white sugar. Dissolve the gum arabic in as much water as the laundress would use for the quantity of starch indicated. Mix the starch and sugar with the mucilage. Then cook the mixture in a vessel suspended in boiling water until the starch becomes clear. The cement should be as thick as tar, and be kept so. It can be kept from spoiling by the addition of camphor or a little oil of cloves.—*Chemist and Druggist.*

LITERARY AND BUSINESS NOTICES.

ANNOUNCEMENT.

☞We again call the attention of our patrons to the fact that with the close of the current volume the price of the American Journal of Photography will be advanced to twenty-five cents per copy, or two dollars per year if paid in advance. Commencing with No. 1 of Vol. XII., January, 1891, the Journal will be presented in an improved form. We expect to present several photographic surprises to our readers during the coming year. We will further say that we will continue to make it our aim that the American Journal of Photography shall be indispensable to every photographer,—amateur, professional, or theorist.

Cameras, Lenses, Shutters, etc., Vol. I. (Anthony's Series, No. 30); Experimental Photography, by C. J. Leaper, F.C.S. (Anthony's Series, No. 31); Art Photography in Short Chapters, by H. P. Robinson (Anthony's Series, No. 32); Platinum Toning, by Lionel Clark (Anthony's Series, No. 28),—have been received from the publishers. These works will form a valuable addition to any photographic library. We call the attention of our readers to the above as well as the preceding numbers of the Anthony Series.

Gesrtze uber das Urheberrecht, G. Hedeler, Leipzig.—A collection of all the existing copyright laws and treaties is being prepared by Mr. G. Hedeler, of Leipzig. The first part, just out, contains Germany, Austria, Great Britain, France, Italy, Switzerland, and the United States. An exhaustive work on the subject of copyright laws—of especial value to all publishers.

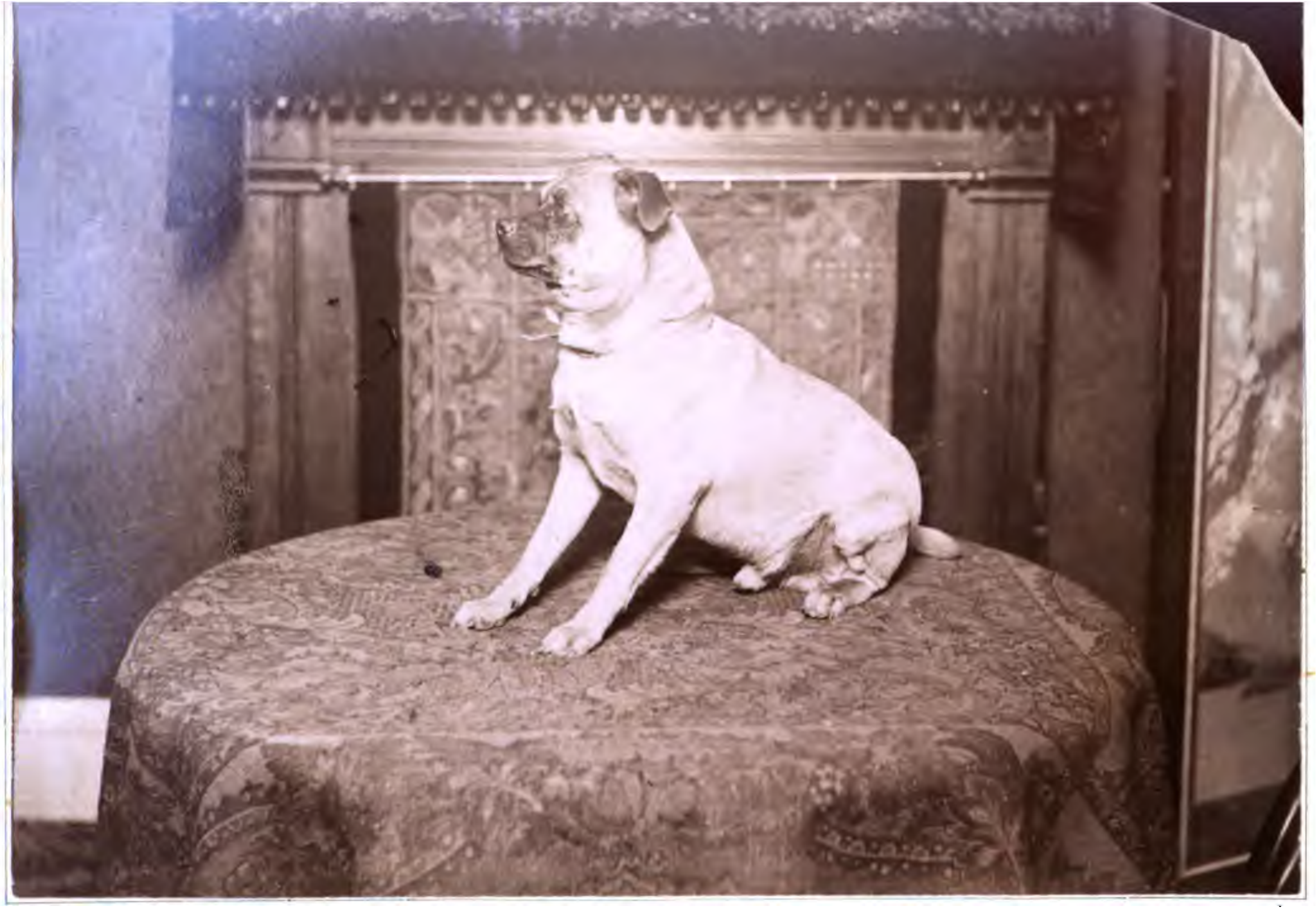
Lantern Slides by Photographic Methods, by Andrew Pringle; The Optical Lantern, by Andrew Pringle. Nos. 34 and 35 of Scovill Photographic Series. Published by the Scovill & Adams Company, New York.—The name of the author of above works is in itself a sufficient guarantee for the value of the matter. Both works are fully illustrated, and with their clear type and fine presswork compare favorably with the preceding numbers of the series. As the photographic boom is extending to the optical lantern in this country as well as England, the two works come out at an opportune time, and should be in the hands of every intelligent amateur photographer.

The Development of Gelatine Dry Plates: A Practical Manual for the Amateur, by Rev. W. H. Burbank.—A small volume of about one hundred pages. The reverend author in his introduction states that his reason for the present effort is the fact that "there is at present no exhaustive treatment of the important question of development readily accessible to American amateurs." The work gives a reason for the various formulæ and methods recommended, and enters at length into the theory of development. It starts with the general principles and goes through all the various manipulations to the final washing. Intensification and reduction is also treated of.

Photographing Interiors.—Photography is an all-the-year-round recreation for amateurs. P. C. Hadley, Jr., in *Outing* for November, calls the attention to the timely subject of interiors, which has been sadly neglected. He says: "Numerous articles have appeared on the subject, but in so far as I have seen the directions have been so general and incomplete that bungling results must have followed.

"Among professional photographers this branch of the art is little understood; many do not care to deviate from portraiture; others are contented to reach partial and imperfect results; yet some few do excel in this department. Speaking from the standpoint of one who groped here and there in the vain endeavor for light, and who failed to acquire a correct knowledge save by a persistent experience and by reducing these generalities to an actual method, 'I know whereof I speak.' No rule can be laid down whereby one can go to work and never fail; but the principles can be so stated that the results will wholly depend for their success on the instruments employed and the judgment of the operator."

It is evident from the tenor of the above extract that the writer is not up on the photographic literature of the present day. If he would read any of the photographic journals—or The American Journal of Photography in particular—he would hardly make so broad an assertion as the above. He would further find that the directions given in this Journal are almost invariably practical and lead to good results.



BLITZ FLASH-LIGHT NEGATIVE.

By M. R. HEMPERLY,
PHILADELPHIA.

AMERICAN ACADEMY

AMERICAN ACADEMY
DEC. 10 1890
OF ARTS AND SCIENCES.

AMERICAN
JOURNAL OF PHOTOGRAPHY.

Published by THOS. H. McCOLLIN & CO.

VOL. XI. PHILADELPHIA, DECEMBER, 1890. No. 12

THOS. H. McCOLLIN, Managing Editor. **J. F. SACHSE, Associate Editor.**

ANNOUNCEMENT.

THE present number completes Volume XI. of the AMERICAN JOURNAL OF PHOTOGRAPHY, and we flatter ourselves that the volume is second to none in the field of photographic literature in America. By reference to the index, which accompanies this number, it will be seen that all the various departments of photography, scientific and theoretical, as well as practical, have been treated, and the latest results arrived at in Europe and America have been promptly spread before our readers. This matter was supplemented here and there by a few pages in a lighter vein, calculated to drive away the blues at times when plates would fog, or prints come out muddy or blister, notwithstanding every caution of the operator. Our greatly increased subscription list, the many kind words of encouragement and friendly notices which we have received, together with the fact that many of our original articles have been republished in this country and Europe, and others have been translated into foreign tongues, has been proof positive that our efforts were appreciated in the photographic field at large.

By reference to our advertising pages it will be seen that arrangements have been made to bind the present volume (ex. adds.) of the JOURNAL at a price within the reach of every one. We further wish to say that the resulting volume will prove one of general interest and reference to the professional, and be worthy of a place in the library or household of the most discriminating amateur.

For the coming year we expect to present the JOURNAL in an improved form, with larger and plainer type, heavier paper, with wider margin, and the pages increased at least by one half. The same care and censorship will be exercised over the matter as heretofore. Several new features will also be introduced during the course of the year, not the least of which we expect will be a series of contributions from some of the leading scientists and researchers in England and continental Europe. We further expect to present our subscribers with a series of illustrations, covering a wide range of subjects, which will prove worthy of the high character of the JOURNAL, and prove of interest to the professional as well as amateur. The majority of our embellishments will, as heretofore, consist of silver prints of choice and chaste subjects.

Our rates after the first of the year will be advanced to a price commensurate with the publication. This fact we have announced during the past three months. We expect to make good our assertion that the improvements presented will overbalance the advanced price.

A NEW SUBSTITUTE FOR GLASS AND FILMS.

IT is a well-known fact that for some time past it has been the aim of the manufacturers of dry plates in Europe as well as America to find a practical substitute for the heavy, bulky, and fragile glass plates used for photographic negatives, which should combine lightness, flexibility, and cheapness with the advantages of glass, at the same time meeting the wishes and demands of the general amateur and tourist, as well as the requirements of professional photographers in the different departments of our art. Paper was tried a few years ago, but did not find much favor among practical photographers. Since then celluloid and gelatine films have been introduced, each with special claims for photographic favor, and at the present time the respective champions of each are claiming perfection for their favorite, without, however, having been able to bring about the general use of films, to any great extent, with professional photographers. This is especially true in the branch of studio work. There are several causes for this failure, one being the increased cost, which is always a factor with the professional artist. The other causes were due to complications and trouble arising in the manipulation and development, caused mainly by the liability of the films to curl. With the professional as well as most amateurs these difficulties were far greater than the disadvantage of the weight of the glass plates. A new medium is now proposed, which, it is claimed, will meet all the requirements for all-round work without the characteristic disadvantages of any of the older mediums for carrying the sensitive emulsion. The base of these new plates is nothing more nor less than a thin sheet of mica, or isinglass, as we usually call it. They are the outcome of a series of experiments made in Germany, and were exhibited by the firm of Oswald Moh in Görlitz, under the name of "Glimmer Trockenplatten," before the late "Congress of the Friends of Photography" in Berlin, where they attracted much attention on account of their flexibility, clearness, and extreme lightness (about one twenty-fifth of glass), and seemingly possessing all the advantages of both films and glass. We are not quite sure, but it runs in our mind that the medium has already been tried in this country or England, and was abandoned. If this be so, the German manufacturers may have overcome the difficulties where the others failed, a fact which can only be proved by future developments.

Mica, as is well known, is a mineral capable of being cleaved into elastic plates of extreme thinness, It is generally more or less transparent, and is now used mainly for the doors of stoves. In former years it was largely used for lanterns and windows on shipboard. On men-of-war it was used exclusively as a substitute for glass, as the concussion from the discharge of heavy guns has no effect upon the thin plates. Mica is an essential constituent of granite, gneiss, and mica slate. The plates or crystals are found in Siberia, Spain, Sweden, and Canada, frequently of an area of several square feet, which separate with the greatest facility in foliæ parallel with the base of the crystal. These may be sub-divided, till many hundred plates are required to made the thickness of an inch, and at the same time are elastic and tough. It is, however, in this property of divisibility that the weakness of the new base consists, and before they come into universal use some method of protecting the edges will have to be invented. Another great advantage mica has over all other films is the fact that it is impervious to all chemicals used in photography, and at the same time laying perfectly flat in the tray, without any disposition to curl, as do films, or to slide around in the tray as glass plates do during the rocking in the development.

Dr. A. Miethe, the editor of the *Photographisches Wochenblatt*, of Berlin, to whom plates were sent for examination and trial, reports that he found the coated "Glimmer platte" from twelve to twenty-three times lighter than the corresponding glass plate. Further, that the "Glimmer platte" can be exposed in any dry-plate holder by using a support of pasteboard, tin, etc.; besides it would not be difficult to construct a holder expressly for the new plate, as there is no disposition whatever to curl.

In the manipulation during development there is no difference from glass negatives, with the exception that when held under a tap it is absolutely necessary to lay them on a firm support, such as a piece of board or tin, to guard against any possible sharp bend (knickungen). An alum bath might also prove of service, as in a forced development a tendency was noticed to the formation of blisters in the fixing bath. The negatives, after being developed, have the same appearance as glass, and bear considerable bending without damage; they may also be warmed and varnished without danger. It is only against a sharp bend that care must be taken, as wherever a crack is formed, dark places arise which show plainly in the copy. It is also best to reinforce the edges of the plates with a strip of needle paper or thin tape to prevent any possible lamination of the plates.

The fact that the Glimmer negative can be printed equally sharp from either side is an advantage to establishments where reproductions are made which is not to be underestimated. Dr. Miethe, in conclusion, states that he believes the new plates will prove of value and practical use, provided that material of sufficient transparency can be obtained in quantities to supply the demand which is likely to arise.

The price of the plates is reasonable, and the emulsion works rapid, strong, and good. The future alone can tell if this novelty, whose properties are here impartially described, will revolutionize the trade and supplant the older occupants of the photographic field.

Which of our American dry-plate makers will be the first to give the proposed base a trial?

JULIUS F. SACHSE.

TO ASCERTAIN IF THE LAST WASHING WATER CONTAINS ANY HYPOSULPHITE OF SODA.—A badly-washed print does not keep well, and this print may, perhaps, contain hyposulphite of soda. To ascertain this: Mix 20 cubic centimetres of the water that is to be tried with from 10 to 20 drops of a solution of starch (1 for 100 of boiling water), and add, drop by drop, some tincture of iodine. As soon as the traces of the hyposulphite are saturated by the iodine, the solution acquires a blue color, and by this means it is possible to discover 1 gramme of hyposulphite of soda in 40 litres of water. If at the first drop of iodine the blue color appears, we may be certain that there is no hyposulphite of soda in the water, and that the print is thoroughly washed.—*L'Amateur Photographe.*

DEVELOPMENT OF OVER-EXPOSED FILMS.

ON commencing to develop the films exposed this summer while abroad, using a Scovill 4x5 detective hand camera and Morrison six-inch focus wide-angle lens, working at F 12 and F 15 for snap-shots, and F 30 for short-time exposures, I found I had in most cases over-exposed them, from speed of shutter not being fast enough.

When in Liverpool I was shown some very beautiful negatives on my Eclipse films, and on inquiry as to developer used was told the development was started with eikonogen and finished with hydrochinon. The results were so fine I determined on trying it, but in my case the results were too flat and lacking in density. I then tried soaking films in strong pyro solution, containing one-eighth part bromide of soda to the dry pyro, then passed into a 5° Baume solution of carbonate of potash and soda till developed; also in a mixed pyro and soda potash developer, with bromide and citrate of soda. And while this latter gave me satisfactory results, there was the usual disagreeable feature of stained finger nails from contact with the pyro solution. Next was tried hydrochinon, and with the most gratifying results; the negatives are clean, full of detail, and density all that can be desired. Following is the formula I am using, slightly modified from the formula to be found in my circular.

CARBUTT'S HYDROCHINON DEVELOPER.

A.

Warm distilled water	20 oz.
Sulphite soda crystals	4 oz.
Citric acid	1 drachm.
Hydrochinon	1oz. of 437½ grs.
Bromide potass.	60 grs.
Water to make up to	32 oz.

B.

Carbonate potash	1 oz.
Caustic soda in stick	½ oz.
Water to make	32 oz.

C.—*Accelerator.*

Caustic soda	1 oz.
Water to make	10 oz.

D.—*Restrainer.*

Bromide potass.	½ oz.
Water	5 oz.

Take of A 2 oz., water 2 oz., soak the exposed film or films in this for not less than one minute (I develop four 4x5 at a time in a 8x10 tray), using those made by the Celluloid Manufacturing Company. They are made with two sunk strips lengthwise of the tray, and are very convenient, enabling one to get the finger nail under the film to raise it from the solution. While the films are soaking in the plain hydro solution I prepare the developer. It is of about same strength as used for lantern slides, viz., A 1 oz., B ½ oz., water 4 oz., for first time using. I remove the films to another tray, and pour over the developer. If the image shows up gradually, and the shadows do not come up too quick, I let development proceed to a finish, picking up and examining each film by transmitted light of the lantern, and if I think it needs more density I pass it into the strong plain hydro until the desired density is acquired. On the second set of four I proceed as above, and if on applying the weak developer the image holds back, add one drachm of B solution or a few drops of C solution. For fixing bath I have had under trial for some time at my factory the following acid fixing bath, and can recommend the same. It keeps clear much longer when fixing pyro-developed negatives, besides hardening the film and clearing up the shadows of the negative at the same time.

Carbutt's New Acid Fixing and Clearing Bath.

Hyposulphite of soda	16 oz.
Sulphite of soda	2 oz.
Sulphuric acid	1 drachm.
Chrome alum	½ oz.
Warm water	64 oz.

Dissolve the sulphite of soda in eight ounces of the water; mix the sulphuric acid with two ounces of the water, and add slowly to the solution of soda sulphite; dissolve the chrome alum in eight ounces of the water, the hyposulphite soda in the remainder, then add the sulphite solution, and last the chrome alum. This fixing bath will not discolor until after long usage, and both clears up the shadows of the negative and hardens the film at the same time.

After a good washing the films are soaked for a few minutes in a four per cent. solution of glycerine and water, the surface gone over with a tuft of absorbent cotton, passed rapidly through clean water, and hung up to dry.

Having derived much pleasure this past summer in exposing nearly five hundred of the celluloid films I commercially produce, both Eclipse and Orthochromatic, I can testify to the greater convenience they possess over glass plates,—no risk from breakage, their weight and bulk being a small factor compared with glass. I took with me one hundred dozen, but owing to meeting with so much wet weather while in Switzerland and Germany I did not expose all of them, and those brought back are in perfect condition for use. One great convenience I desire to note. It was my practice in loading the double-film holders (I took with me twenty-four) to number consecutively the film at the corners on back. My holders were lettered on the edge from A to X, and numbered on the sides from 1 to 48, reserving from letter A to R for Eclipse films, and from letter S to X for Ortho. films. I used Anthony's exposure book, making the numbers consecutive. On taking out the exposed films and replacing them in the envelopes, I noted on the outer one the numbers on back of films, carrying this out systematically. I can now, by referring to my exposure book, take out of the respective envelope any one or more of the exposures I may want to develop, whether in the first, middle, or latter part of my journey, which I am now doing in order to produce a number of lantern slides to be shown at a meeting of the Philadelphia Photographic Society. Yours truly,

Wayne Junction, Phila. John Carbutt.

An Antiseptic.—One grain of sulphate of quinine will preserve a large bottle of paste, or any other mounting solution, for an indefinite time.

THE VERESS EXPERIMENTS.

IN view of the widespread interest excited by the experiments of Francis de Veress, of Kolozsvar (Klausenburg), Hungary, and of certain derogatory statements published in various papers which were calculated to cast discredit upon the eminent Transylvanian, the publishers of the *Revue Suisse de Photographie* in Geneva, wrote to Veress, requesting information in regard to his recent results in obtaining natural colors by his particular line of research. His son-in-law, M. Ch. Szilâgyi, sent the following reply :

[*Translation.*]

BUDAPEST, Sept. 7, 1890.

DEAR SIR :—M. François de Veress has received your honored letter of August 8th, and it is in his name that I have the honor to reply to you, thanking you for the two numbers of your *Revue* you were so kind to send us. My father-in-law has succeeded in reducing the time of exposure to a great extent.

He regrets very much that for some important reasons he is not able to devote to his experiments the time he should desire. Nevertheless, he continues his work, and a few days ago he commenced to study a new process, of which I send you enclosed some samples in colors, made with different emulsions in collodium (chloride of silver). Of course he has had no time to satisfy himself of the stability of this new method. In the meantime, please to keep the samples protected from light.

Yours truly, CHARLES SZILÂGYI.

These lines were accompanied by two beautiful proofs in colors, one a reproduction of a picture apparently of the Hollandaise school. The colors are very distinct, and show very warm tones, if they are only permanent, although we shall not risk exposing them for any length of time to the light, still there is shown a remarkable progress.

[From other accounts received it shows that some progress has been made by Veress in obtaining brighter colors and shortening the time of exposure, but so far has not succeeded in fixing the prints.—ED.]

A PURPLE TONE BATH.—M. Skybones recommends to those who want a toning bath giving bluish purple tones of high quality the following, which he has used a great deal :—

Acetate of soda (double fused)	40 grains.
Acetate of soda (recryst)	40 "
Borax	20 "
Chloride of gold	1½ "
Warm water	10 oz.

Let stand for 24 hours and use tepid. Should any difficulty occur in procuring double fused acetate, make it as follows :—Put about 2 oz. acetate of soda on an old plate and put in an oven till liquid, let cool, break up with a spatula or knife, and melt again. When cool it is ready for use.

THE USE OF THE COLOR-SCREEN WITH PLAIN PLATES.

EDITOR AMERICAN JOURNAL OF PHOTOGRAPHY:

MY esteemed friend, Mr. E. I. Wall, the editor of *Photographic Answers*, has forwarded to me your October number, in which, on page 300, I see a letter from Mr. Hermann Lemp with an editorial note added by you, and I trust you will allow me the honor of publicly answering the same. I am contributing a paper on this subject to *Photographic Answers*, and send you an advance copy of this with special note added since the receipt of your excellent magazine.

Every one knows the effect of allowing a beam of sunlight to pass through a prism in a darkened room, viz., a solar spectrum is obtained, but by allowing the beam of sunlight to pass through yellow glass, we find that part of the violet, blue, and green rays are absorbed, or reduced in intensity according to the depth of tint of the yellow glass or screen. Now these three more refrangible rays are those which are specially chemically active in affecting the sensitive salt of an ordinary bromide plate. The rays which are allowed to pass freely, the less refrangible rays, being those which have little or no action on the bromide of silver. Now, it is an accepted axiom, first laid down by Sir John Herschel in his "Treatise on Light," that if a certain thickness of any colored medium absorbs a given quantity of light of a definite wave length, a second thickness of the same colored medium will absorb the same quantity of light of a definite wave length of what is allowed to pass by the first medium. Thus taking an actual example from one of my screens, we find one thickness absorbs .5 of the chemically active rays and only .1 of the yellow and red rays, therefore, a second screen of the same intensity will absorb .5 of the chemically active rays and .1 of the less refrangible rays which pass through the first screen. We have now only to find out the luminosity of the different parts of the spectrum, and we can then construct a table which shall show us how many thicknesses of yellow glass we must use to obtain an effect on the dry plate similar to that which is obtained visually, which is estimated by Dr. Eder as follows:

Orange at C,	10
Yellow at D,	80
Yellowish green at D½E,	100
Green at E,	30
Cyan. blue at F,	10
Violet at H,	1

Please note carefully this represents the visual luminosity.

Now the luminosity of the two principal colors, violet and yellowish green, to the sensitive salt of silver is totally different, and is approximately estimated by Captain Abney to be 10 for the yellow and 1000 for the violet. Now we have to make this sensitiveness equal that of the visual sensitiveness, and this is done, so says Mr. Lemp, and he is supported also by you in the editorial note, by the use of a yellow screen, which absorbs not only part of the violet but also some of the yellow rays. In case this last statement is doubted, I may add that it is only necessary to keep on increasing the thickness of our yellow glass to obtain no yellow rays at all, the result being nothing but red.

The following table then, will show the effect of increasing the thickness of yellow medium on the photographic luminosity, or power of violet and yellow light on the sensitive salt of silver:

THICKNESS OF YELLOW GLASS.	PHOTOGRAPHIC INTENSITY OR LUMINOSITY.	
	YELLOW.	VIOLET.
0	10.	1000.
1	9.	500.
2	8.1	250.
3	7.29	125.
4	6.561	62.5
5	5.904	31.25
6	4.314	15.62
7	3.883	7.81
8	3.495	3.90
9	3.146	1.95
10	2.832	.97
11	2.549	.48
12	2.295	.24

Now from this table we see that with twelve thicknesses of yellow glass the luminosity of the violet to the luminosity of the yellow is practically as 1 : 9.5, but the luminosity of these two rays visually is as 1 : 100. Therefore this proves quite conclusively to my mind that it is impossible to obtain a true rendering of color by the use of either one or twelve yellow screens. Besides this, the increase of exposure would render the process unpractical and useless for both indoor and outdoor work.

Now, to turn to Mr. Lemp's personal statements, he admits that he knows nothing of orthochromatic plates, yet he says, "The orthochromatic plates are expensive and there is some uncertainty connected with their use, while as they are sensitive to yellow light they require careful development." The question of expensive[1] is a trivial and unworthy subterfuge when the cost of orthochromatizing one dozen 6½ x 4¾ plates is *under six cents;* again, there is no "uncertainty connected with their use," if you know what you are about; thirdly, though they are "sensitive to yellow light," I will engage to develop any orthochromatic plate in the market, such as Vogel's azaline, Tailfer's erythrosin, or Vogel's eoside of silver plate, in a brilliant orange light, and the resulting negatives shall be absolutely free from fog, stain, or deposit. Mr. Lemp says, "they require careful development;" can he tell me a plate, ortho, iso, or ordinary which does not require careful development, I at least don't know of one, and that after about seven years constant work. I perfectly agree with him, however, when he says that it is "difficult to obtain a clear horizon on distant views, not to speak of cloud effects" on ordinary plates, and I don't believe for one moment that Mr. Lemp or anyone else is going to obtain such enormous advantages as he would have us believe by the use of the yellow screen with an ordinary plate; I don't believe it, because I have so often tried, not only with one particular screen, but several. The print which Mr. Lemp encloses I should like to see, not because it can be admitted as evidence, because no data are given as to altitude of sun, development, etc., and chiefly because it is circumstantial evidence only, no comparative exposure having been made on color sensitive a plate for comparison, but I should like to see it, or rather the negative, because ten seconds is a *long* exposure, even with 64, U. S.

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[1] This criticism is decidedly unfair to Mr. Lemp and shows that F. C. S. is evidently not posted on prices in this country. Heretofore there has been a considerable difference between the price of ordinary and orthochromatic plates, quoting from last summer's price list, where 5 x 7 ordinary plates are quoted at $1.10 per dozen; $1.40 is charged for orthochromatic glass plates, and $1.75 when coated on films.—ED.

With regard to your editorial comment, sir, on my screens, will you allow me to state that I possess eight in all which were chosen by me by spectrometric examination from the stock of two London and one German dealers, and the increase of exposure required is progressive from 1 ½ to 8 times normal. As to the second statement, the words "*sufficiently intense*," requires some explanation after the table given above before I can answer it definitely. As to whether I knew what I was about in using so-called "*weak or unsuitable screens*" I leave your readers to judge from the above statements.

In conclusion will you allow me to suggest that Mr. Lemp should try color-sensitive plates *fairly* against an ordinary plate, with and without the screen, and I am positive that he will never make such a mistake as to believe that any ordinary plate will give true graduation or true color values with any screen which can be practically used for ordinary work. Yours faithfully, F. C. S.

[Our correspondent's argument is perfect; but, unfortunately for his conclusions, it is based upon a false assumption, which is, that yellow color-screens which absorbs one-fifth as much yellow light as blue or violet are not "*weak or unsuitable*." A *suitable* screen for this purpose is one that is practically opaque to the blue, violet, and ultra-violet rays, but as transparent as uncolored glass to the yellow and yellow-green rays. Such screens can be made with aniline yellow; and a solution of picric acid in a plate glass tank which will be practically opaque to the blue and violet rays without even reducing the intensity of the green at E. With such screens it would be necessary, according to our correspondent's calculations, to increase the exposure by possibly fifty times, or to a few seconds on a well lighted landscape. The picture would be made chiefly by the true green rays, instead of the yellow-green and yellow, to which erythrosine plates are most sensitive. With some commercial orthochromatic plates, the exposure would be increased at least ten times by the same screen.]

THE INTENSIFICATION OF PRINTS.

AT a late meeting of the London Camera Club Mr. Lyonel Clark was called upon for his promised paper on above subject.

He said that his remarks would be more of the character of a few notes than of a set paper, but it must be admitted that those notes were of the most important nature. Since his original lecture, he had tried some of Arnold's unbleached paper, supplied by Reeves & Son, and was very pleased with it; it appeared to be purer than Whatman's paper, and free from the specks of metal which were such a nuisance. In his book he spoke a good deal of using arrowroot in the salting solution, but further experience had led him to think that it was better to always use gelatine, as the bath could then be used several times, and there was less likelihood of variation in its composition, the difficuly being to get the same kind of arrowroot twice. The gelatine could be used again and again, so long as it set in a jelly on cooling. He generally used eight grains to the ounce, and in very bright weather even six grains; he also now used the simple chloride bath instead of the ammonia citrate bath, but for very vigorous prints he still used the latter. He would remind them, however, that the salting solution should be used as hot as possible, and to keep it hot it might be placed in another dish containing boiling water. In salting stiff papers he used a camel's-hair brush with some of the solution before floating, and it was a good thing to leave the paper in a somewhat damp place over night. It was necessary to be very careful that the solution did not get to the back of the paper, or the result would probably be the spoiling of the print. In silvering the paper the great difficulty was insufficiency of nitrate. The nitrate must be in such quantity that after combination with the chloride there was silver in excess.

Now came the great feature of the evening, when Mr. Clark gave some further details as to the process of intensification of prints to which he referred in his original lecture. The process is very simple, and it possesses an advantage which is likely to bring it into great favor with those who are tired of the comparatively restricted number of tones procurable by the old processes, namely, that by means of it any tone from sepia through all the browns to absolute black. Intensification can be proceeded with either before or after toning, or without toning at all. On the other hand, they may be toned and intensified several times over (here Mr. Clark showed a number of intensified prints, some of which had been toned with gold, some with with palladium, and some not at all. Iridium would not tone at all). The strength of the intensifying bath seemed to have little or no effect, beyond the fact that more or less silver made the bath quicker or slower respectively. The bath is a very simple one; it consists of a little nitrate of silver acidified with acetic acid, to which was added as much pyro as would cover a farthing, and enough water to cover the print. In the first place, the paper is put under a negative, and printed to half the usual density; it is then washed, and, if desired, toned, and washed again, put in a clean dish, and flooded with the intensifying bath. When the requisite color is obtained it is removed from the bath and again well washed and fixed, and a final washing completes the operation. It is a curious fact that the lighter the tone desired for the picture the deeper must be the original print.

Mr. Clark then proceeded to demonstrate the process. He took a half-printed picture which had been well washed, toned it fully with palladium, washed it again, and then flooded it with a bath consisting of: Two ounces of water, twenty drops of acetic acid, five or six drops of the nitrate of silver solution which he used for sensitising his paper (sixty grains of silver to the ounce). The result was a pleasing brown, and though the lecturer got considerably chaffed because the process of intensification proceeded farther than he intended, and the shadows got somewhat blocked, it was evident that Mr. Clark has opened up to photographers a range of color which they never before possessed. He claimed that although the prints he treated might not be so permanent as those secured by the Platinotype Company's process, they were more permanent than ordinary silver prints, as his process deposited on the print pure metallic silver.

In answer to questions from the Rev. F. C. Lambert, Mr. Clark said he had no difficulty in getting exactly the same tone any number of times with the same negative. The process could be used locally by means of application with a brush.

Proceedings concluded with a vote of thanks to the lecturer.

THE MICROSCOPE AND PHOTOGRAPHY.

(TRANSLATED FOR AMERICAN JOURNAL OF PHOTOGRAPHY.)

MANY of our amateur photographers are also skillful micrographers, of whom only a small number occupy themselves with photo-micrography. This surprised me, and it seemed a pity to see them struggle with long studies and microscopical researches without securing their results by the simple process of photography.

I thought that some explanation on this interesting work might be of some use. We might say, however, that some subjects present the greatest difficulty to the student. But can an adept lose patience, especially if this adept is at the same time a micrographer? Is not the work more attractive if the difficulties to be overcome are numerous and great? Most of those who visited the remarkable exposition of the photographic section at Antwerp, in the Salle de Verlat, were convinced that the specimens exposed by different members—of whom we mention Messrs. Gife, Sanders, Stappers—were already works of great perfection. We admired some samples of the mouth, of the sexual organs of the fly (crystalis), a proboscis of the butterfly, an eye of a horsefly, a scale of a fish enlarged more than 100 diameters, enlargements of microbes 800 diameters, the *Pleurosigma congulatum* in pearls, photographed by polarized light. Oh, these pearls, how many plates have been spoiled before success was achieved!

Photography is already such a powerful auxiliary to microscopography that all the laboratories of the universities of the entire world provide themselves with photomicrographs, more or less perfect. The Doctors Pasteur, Koch, Van Ermengen, and many more famous bacteriologists, published for a long time photographic plates of microbes and bacilli of all kinds, and permit us to admire, with powerful diameters, the infinitely small micro-organisms which ravage our frail existence. No scientific publication is perfect if its illustrations are not made by means of photography. What gigantic efforts have been made to arrive at such a perfection! The amateur photographers have certainly contributed to a great extent to spread the taste for the beautiful art. Thanks to them that such precious documents were brought to light, which the professionals, so much absorbed by the cares of their profession, could not find time to produce. Doubtless they will yet help, with their practical experience and patient researches, to simplify the photo-micrographic processes, which open so large a field to investigation.

Not wishing to publish the results of my own works, I thought to interview my excellent friend, Dr. Henry Van Heurck, whose micrographic works are well known everywhere, and to obtain some information relative to his essays and his results. That will surely give satisfaction to such amateurs who are inclined to occupy themselves with this attractive art, which opens the horizon to so delicate and curious observations.

Everything which can be seen through the microscope can be reproduced by camera on the sensitive dry plate. This reproduces sometimes even details which escape the observer; a great number of rays, for instance the ultra violet, which our eye cannot perceive, yet act upon the sensitive photographic plate. The processes of photo-micrography, says Dr. Van Heurck, are very simple, especially if we limit ourselves to photographing ordinary objects, insects or parts of insects, vegetable or animal organs, easy diatomes, etc.

It is enough to have a good microscope, a suitable camera, and a strong portion of patience. The essential thing, however, is to know how to manage the microscope; without this, nothing of good will ever result. It is the micrographer who makes photo-micrography,—the photographer comes only in the second place. Dr. Vodward, who is justly considered the most eminent photo-micrographer up to the present time, contents himself to bring the image to the point (*i.e.*, focuses it on the ground glass), and then allows the rest of the work to be done by his employes, photographers by profession. Is this not the case with the whole profession?

Such amateurs, at the Antwerp exhibition, whose photogrammes were indeed beauties and veritable pictures, have not given anything besides their scientific knowledge, which allows them to arrange their subjects and to select a convenient light and focus on the scene, and then the professional photographer was secured to complete the work.—*Bulletin de l'Association Belge de Photographie.*

THE ACID FIXING BATH.

THE acid fixing bath was brought prominently before photographers about a year ago, and we cannot help expressing some surprise that it has not been more generally adopted. In our own hands it has proved of so great advantage that we should now be very sorry to be without it.

The advantages of having solutions into which gelatine dry plates are to be placed after development *acid* are several. In the case of pyro development there is the advantage that the alkal iis neutralized, and that all yellow or brown stain is prevented or removed. In the case of the ferrous oxalate there is the advantage that a yellow deposit of iron is prevented.

Until lately it was supposed that, whatever might be done in the way of using acid alum baths, or merely baths of dilute acid in water, it was not allowable to add acid to the hypo bath, as such acid would precipitate sulphur with possibly dangerous results. This is certainly true of most acids,—in fact, perhaps of all substances that need be considered as acids in this connection, namely, such physical acids as will act as clearers of pyro stain, or as preventers of the deposit of iron from the ferrous oxalate developer except that to be mentioned,—but it is not true of sulphurous acid. This acid may be present in a hyposulphite solution without precipitating sulphur, and will be found to have most beneficial results in various ways.

The advantages of the acid bath will be enumerated presently. The first point is as to how the sulphurous acid is to be added to the fixing bath. The plain and straightforward way would seem to be to add what may be needed as sulphurous acid; but without going into details as to the various methods that may be adopted for getting sulphurous acid into the fixing bath, we may state that we think there are sundry advantages to be found in the practice of producing the sulphurous acid in the hypo solution by the decomposition of sulphite of soda by sulphur*ic* acid, or any of various other acids that will act in the same way.

If we make a solution of sulphite of soda—strength not of much consequence—and gradually add sulphuric acid to it, there will be no apparent result for some time; but after a certain quantity of sulphuric acid has been added, the solution will begin to smell strongly of sulphur*ous* acid, the explanation, as we understand it, being that the sulphuric acid replaces the sulphurous acid of the sulphite forming sul*phate* of soda, the sulphurous acid set free dissolving (up to a certain point) in the water of the solution.

If, now, we take a solution of hyposulphite of soda, such as constitutes the ordinary fixing bath, dissolve in it a certain quantity of sulphite of soda (say 10 per cent.), and add sulphuric acid, one of two things may happen: If we add the sulphuric acid suddenly, and without much stirring, the solution will smell strongly of sulphurous acid, but at the same time there will be a copious yellowish-white precipitate of sulphur, If, however, we add the sulphurous acid drop by drop, and with ample stirring, there will be no effect at all for a little time, but after that the solution will begin to smell strongly of sulphurous acid, *without showing any precipitate at all.*

In the first case the sulphuric acid decomposed both the hyposulphite of soda and the sulphite; in the latter case it decomposed the sulphite of soda only, the the result being a solution containing the original quantity of hypo, a certain quantity of sulphate of soda,—quite neutral in its effects,—some sulphurous acid, and, unless enough sulphuric acid was added to decompose all the sulphite of soda, still some sulphite of soda.

This somewhat complex solution constitutes the *acid fixing bath* that we prefer to any other.

In the first place, as to the advantages of any fixing bath rendered acid by the presence of sulphurous acid, however introduced: The solution, if used for fixing negatives, will keep as clear as water, so long as it is acid. It appears to fix rather more quickly than a neutral bath, it clears away pyro stains that there may be, and it appears to harden the gelatine film rather than to soften it, as do most acid solutions.

Then for the advantages of the particular form of the solution recommended above. We have to consider the case of a negative or a bromide print carrying a certain amount of acid with it into the fixing bath. In the case of a negative we are likely to have this state of affairs if there has been previous treatment with the alum bath. This is especially so if the alum baths have been rendered acid, as is often done, by the addition of citric or hydrocholoric acid, but will be so, more or less, in any case, as alum is an acid salt, and indeed it is generally known that, if the ordinary fixing bath be used, a plate that has been treated with alum must be thoroughly washed before it is fixed, otherwise there is liability to a deposit of sulphur from the fixing bath. There is, we believe, the same probability of a deposit in the case of an acid fixing bath made acid merely by the addition of sulphurous acid, but there is not in the case of a bath rendered acid by decomposing sulphite of soda by sulphuric acid, leaving an excess of sulphite of soda, for if further acid be brought into the bath by the plate the only result is to decompose a little more of the sulphite of soda, liberating a small quantity of sulphurous acid.

For these reasons, whilst the alum bath is less necessary with an acid fixing bath than with the ordinary bath, if it be used, in conjunction with an acid fixing bath made up as recommended, a mere rinsing is sufficient between the alum and the hypo baths.

Perhaps still greater are the advantages of the acid fixing baths in the case of bromide prints developed with ferrous oxalate. It is customary, and indeed necessary, to place such prints, immediately after development, in an acid bath, otherwise there is almost sure to be a yellow deposit over the surface. But, on the other hand, if the ordinary fixing bath be used, it is necessary to wash the last trace of this acid out of the prints, otherwise sulphur will be deposited from the hyposulphite of soda.

With the acid fixing bath that we have recommended there is no necessity for any such precaution. The prints may go directly from the acid bath to the fixing bath, the only result being, as before, that a certain quantity of the excess of sulphite of soda will be decomposed with the liberation of some more sulphurous acid. Indeed, we have placed bromide prints, taken directly from the ferrous oxalate developer (in this case made rather more acid than usual) in the acid fixing bath, and have got perfectly pure whites; but we have not had enough experience of working in this way actually to recommend it.

As to the exact way of mixing the acid fixing baths with excess of sulphite of soda, we have no doubt that one recommended by Mr. W. B. Bolton (to whom, more than to any other, we are indebted for the popularization of the acid bath) is the best. Mr. Bolton recommends that to a concentrated solution of sulphite of soda there be added enough sulphuric acid to decompose a part, say one-half, of the sulphite of soda, and that the resulting mixture of water, holding sulphurous acid and sulphite and sulphate of soda in solution, be added to the ordinary fixing bath as appears necessary.

This method has two advantages. The quantity of sulphurous acid used is more easily controlled, and there is less chance that sulphur should be deposited through the careless addition of sulphuric acid to a solution containing both sulphite and hyposulphite of soda, than by any other method.

Although we recognize this as the best method we have, perhaps through pure laziness, made use of one somewhat simpler, and that has worked very well with us.

To the ordinary fixing bath we add some 10 per cent. of sulphite of soda. We then drop in sulphuric acid with care, stirring vigorously till there is a distinct smell of sulphur*ous* acid.

The bath is now ready for use, but as sulphurous acid is highly volatile it is necessary from time to time to add a few drops of sulphuric acid. This should be done whenever the bath ceases to have a "sulphury" smell. These additions may be continued either till the sulphite of soda is all used up, as indicated by the fact that further additions of sulphuric acid do not produce a sulphury smell, but precipitate sulphur, or till the bath becomes exhausted. The volatilization of the sulphurous acid is greatly impeded by keeping a glass plate or other cover over the fixing bath when not in use.—*W. K. B., in Photography.*

MR. IVES will lecture before the Franklin Institute, Philadelphia, on the evening of December 19th, on "Photography in the Colors of Nature," on which occasion he will fully illustrate the subject, and show the practical results which have been achieved by him up to the present time, a full report of which will appear in the AMERICAN JOURNAL OF PHOTOGRAPHY for January.

IN TROPICAL SEAS.

THE following letter has been received from our friend, Prof. J. T. Rothrock, who is now in tropic waters on a scientific expedition. Dr. Rothrock is also an enthusiastic photographer, and has a full photographic outfit with him. A commodious dark room has been fitted up in his yacht. On his return from the Carribean Sea we expect to reproduce some of his photographic results and experiences in the AMERICAN JOURNAL for the benefit of our readers.

NASSAU, Bahamas, November 10, 1890.

It is hard to select from so many new sights and facts what to write of when one has so much before him. First of all, however, let me remind you that we are now under the British flag, and the whole character of this place partakes of the easy, regular, solid life of our worthy ancestor.

It would faintly express the facts to say that we have been well treated here. From the governor down to the most subordinate official, every one has done his best to make our stay pleasant. We were subject to no Custom House ordeal, to no extortions, or any other experience than it is pleasant to remember.

Nassau looks like an old place dropped down in the New World. It has none of the spasms of our daily life. Perhaps, in all kindness, it would be the better for just a little of our rush. A view overlooking the town shows gardens of an acre or two, enclosing cocoanut, orange, lemon, grape-fruit trees and pineapple plants, all in a mass of tangle. Hardly a house but has its banana plants growing in easy proximity. Tomatoes, watermelons, and mush-mellons appear in the market, and for one shilling you can have a whole bushel of lemons placed on your deck. For $1 we bought 100 of the freshest and sweetest oranges. God has been too good. There is but little room left for the thrift which comes from systematic labor. The consequence is that a large part of the population does only what it must. I am told that liberal inducements would be offered to active young men from the States to settle here.

The Bahamas are not entirely perfect. They do *at rare intervals* have yellow fever. And the summers are said to be hot, but they are as nearly the ideal as any spot of earth I have seen.

There are, I am told, in Nassau about 3,000 whites and 12,000 blacks. I was struck by the free mixture of the races in the grandest church of the place. So far as external signs indicated, all met on the common plane of similar needs and like aspirations. There were as many colored as white collectors receiving the money from the congregation. It came to me like a vision into the future, when a man will be a man in spite of color.

Thus far we have been very successful in our scientific work. Every one comes in twice a day with hands and boxes full. Our cabin is perfumed while I write with the odor of half-cured Gorgonias. Odd forms of sponges and beautiful queen conch shells crowd each other in our spare berths.

Of venomous things there are none—to hurt. The lizard will run up your pantaloons, trusting you ; why cannot you trust them ? And we may add here (nearly) the celebrated chapter on snakes in Ireland : there are none venomous, and but few of any kind. Twice a month the mail comes and goes. There is no hurry over morning papers, and the familiar cry of the newsboy is not heard on the streets.

If any one from the States desires to visit this restful place of Nassau, let him remember that American gold and bank notes are good here, and that a draft on New York is at a premium.

We have had a heavy blow from the north for a week, one which tried the White Cap severely, but the good yacht did all and more than we hoped for. She climbed up the sides of the waves in a manner which seemed impossible. We leave here in a few days to go southeast through the whole chain of the Bahamas. Thence we hope in less than a month to enter the port of Kingston, Jamaica.

J. T. ROTHROCK.

Yacht White Cap, University of Pennsylvania Scientific Expedition.

ON COLORING DRY-PLATE LANTERN SLIDES.

NO one who has attended illustrated lectures or exhibitions of lantern slides can have failed to observe the pleasure with which well-colored views are received by the audience. Not only do such pictures make a break in the monotony of the plain slides, but, if true to nature, with the tints delicately and judiciously applied, they give a realism to the scene unobtainable in the plain photograph.

Makers of lantern slides are apt, when at work, to overlook the fact that the perfection of the picture depends on its appearance on the screen, and not on the beauty of the slide itself. Hence it is that so many wet-plate slides (nearly all, in fact) are too dense to look brilliant and transparent in the shadows when enlarged much more than to sixteen or eighteen feet, even with the very best of modern stereopticons. The idea that absolutely clear glass in sky and water is always necessary is passing away before the beautiful cloud effects and reflections so easily obtained in dry-plate slides, and, above all, color can be so quickly and easily given to these effects that the glaring brush- or finger-marked slides so common to-day will soon be as obsolete as the old oil-painted views of twenty years ago. If any reader of this little article will adopt the following few hints, aided by his own experience, success in obtaining beautiful colored slides will be assured.

For this work the common aniline dye colors are used. Three brushes are necessary; one broad camel's-hair, about an inch in width, one medium-sized fine-pointed sable brush, and one quite small sable brush for very delicate tinting. Prepare a medium solution of gum arabic—that sold in bottles in any stationery store will do—and all is ready. The work must be done by daylight in order to get the proper tones.

Make the dry-plate slide in the usual way and to the density desired, using any of the developers, with care, however, that the plate is well cleared of hypo after fixing, and that no sediment from the water remains on the film.

The sky is colored while the slide is still wet.

Place a few drops of blue color from its bottle on a plate, and beside it a drop or so of the gum solution. Holding the slide in the left hand, with sky downward, take the largest brush from a glass of clear water, where it has been soaking for a few minutes, and without squeezing out much of the water from the hair, take up some of the color and gum from the plate. The plate must be kept very wet during the tinting of the sky by dipping the brush constantly in the glass of water. Begin at the bottom of the slide (which is the top of the picture), and with rapid strokes of the brush, from side to side on the film, work up to near the horizon line, making the color deeper and deeper by repeated applications, until satisfied with its intensity. If the color should be too intense when finished, soaking or brushing with clear water will reduce it. In sunset effects, after the blue is finished, a very much diluted application of rose color should be blended into the blue near the horizon, then next to that a slight trace of lemon-yellow, or whatever tint the artist desires; but throughout the whole work on the sky the plate must be kept wet, as the moment the film begins to get sticky and hardens the brush will make streaks in it. The time required to tint the sky should not exceed five minutes.

While the plate is drying, but before it is quite so, is the best time to work in greens and the broader colors of the landscape. Mix lemon-yellow and blue, lemon-yellow and dark green, and orange and dark green, and any color of foliage can be obtained by varying the proportions. The foliage which is against the sky must be tinted after the plate is dry with the small brush, or the color will run into the blue. For rocks, stone buildings, etc., use a light tint of violet; for roadways, paths, etc., use browns, yellows, and violet; for sea-water, dark green and blue; for still water, reflect the sky as nearly as possible. Best of all, study nature and reproduce it.

These colored slides may be mounted as usual with mat and cover glass. The colors are not affected by heat or cold, as they are incorporated in the film of the plate. It is best to keep from dust as much as possible when at work. If it settles on the sky while tinting, wash the whole thing under the tap. Don't try to pick it off or rub it off with the fingers or brush. Blue can be reduced in intensity by rinsing the plate, the other colors cannot; so be careful not to have sunsets too intense.

Better colored slides can be made on dry plates than those prepared by the wet process. In the words of Buchanan Read: "If you don't believe it, try it."—*Arthur le Boutillier, in The Photographic Times.*

OUR ILLUSTRATION.

WE present our readers for December with a Blitz-pulver effect of more than ordinary excellence. It is by Mr. M. R. Hemperley, who for the past ten years has been chief operator with Gilbert & Bacon, of this city, and who is one of the most expert photographers by flash-light, his specialty being groups and interiors. In photographing the former, where extreme actinic action is required, he uses blitz-pulver exclusively. For interiors, where there are no figures or moving objects, he uses an ingenious magnesium lamp of his own invention by which repeated flashes can be given. In getting out our edition for this month we use twelve of Mr. Hemperley's negatives, all of equal excellence. As the season for flash-light exposures is now upon us, such of our readers who are interested in blitz pictures will do well to study our specimen, and improve upon it if they can. We will be glad to receive at any time, for review, specimens of our readers' work, professional or amateur.

BACKGROUNDS, AND HOW TO HANG THEM.

THE woeful state of crease and dirt and stain that characterizes so many of the backgrounds in use at the present day is familiar to all who have had the entrée into a variety of studios, and such will unite in saying that it is not in the second- or third-rate studios alone that room exists for improvement in this once most important part of a photographer's outfit. The time is well remembered by old workers when, especially at the beginning of the *carte de visite* mania it was the exception, and a rare one, to see a portrait without a pictorial background, the choice of surroundings being shrewdly chosen with an eye to, and too frequent, possible spot and corner, which, in the intricacies of a forest, the tracery of a Gothic window, or the architectural detail and adornments of a palace, could be ignored when not too prominent. The gradual supplanting of the *carte* by the cabinet, and the less frequent choice of full-length portraits, has led to great disuse of these gorgeous pictures, another cause also being increased taste in both public and photographer. But there are still large numbers of backgrounds pictorial and plain, in various tints, made use of in studios of the highest class; and it is with regard to the mode of hanging them that some remarks will not be inopportune.

Perhaps the commonest mode of all that is adopted is the old theatrical plan of a roller, and cords to wind up the scene when not required, or to make room for another. When many are in use the plan is good, save for the awkward shadow cast on the upper part by the projecting rolls when a scene at or near the back of the set is used A very ingenious stand was devised some years ago for avoiding this drawback, and it can still be purchased at the leading photograph dealers. It is, comparatively speaking, costly, and requires a certain height of room to work it; but with sufficient space it would be difficult to find a better method of quickly and easily changing a set of backgrounds. Any one can instantly be brought into position, and the whole surface included without any cast shadows from the support or its contained rolled-up scenes.

There are photographers who pooh-pooh "backgrounds" altogether; but, although it is no part of the purpose of this article either to uphold or decry their, use, it may be said, on the other hand, that nothing can be more chilly, inartistic, or devoid of invention (which should characterize all works of art) than the dead, blank monotony of the once familiar gray background. Devoid of light or shade to suggest roundness or distance, this blank patch has often utterly damned many an otherwise attractive work of art. Let Rylander's pictures be examined,—for their design and invention, and not their technique,—and how often shall be found such a meaningless patch? Adam Salomon's photographs, too, which marked an era in photographic taste and design—was not the manner in which his backgrounds formed part of the picture one of his distinguishing characteristics? Directly after his works were seen in this country there were silver prints on the walls of the parent society's exhibition that were every whit equal in technical excellence to his, but which were utterly killed by this meaningless blank that, according to the fashion of the day, surrounded them, and destroyed all suggestions of atmosphere or distance. That this feeling to which we have attempted to give expression has been in the minds of many workers of the present day seems highly probable from the immense number of those exceedingly effective "graduated backgrounds" that are now seen. Almost every studio possesses one or more; and although they may be used mechanically, they mark a change for the better in what may be termed the multitude of photographs.

It is, of course, not impossible to so utilize a plain background by light and shadows as to produce really artistic effects with its aid. Such indeed is its only use where anything but vignetted busts are required. With this end in view, the fixed cord-and-pulley system of hanging is perhaps least adaptive, and a great advantage will be found in a system which shall permit the ground to be shifted at an angle to the light in one or other direction. Those who have had no experience of this convenience are surprised at the variety of effects produced by it. A group of medium tints can, by setting it askew in one or other direction, be made to give a medium, or a very light, or an extremely dark effect. And if this be broken by a light reflected from a mirror, or a cast shadow from a screen, a considerable step is taken towards increased effect. This can be done with a plain non-graduated ground; it need not be said that still more can be done with the ready graduated background we have referred to. The tilting or sloping, however, involves a movable background, with its many disadvantages and inconveniences. We have lately seen a practical way of overcoming these which, as it is neither costly or difficult of execution, we purpose to describe the method by which the difficulties inherent in such a plan had been successfully overcome. Premising that no claim for novelty was made, though, as a matter of fact, the photographer using them had planned their arrangement without having seen any similar plan, we may say that essentially it consisted in stretching the background on to a frame, from one end of the room to another, from side to side, at any angle whatever with regard to the dominant light direction. Further, this movable screen was reversible,—that is to say, there was, to begin with, a background on each side. One remarkable quality of this screen arrested our attention by reason of an accident. A blow happened to be given to it, but not an indention was made, while with an ordinary background stretched on a frame a deep indention would have been made that would not have disappeared for weeks.

The screen was built first of a stout wood framework, with cross-pieces to prevent warping. A triangular end was then placed at each side to form a supporting foot to prevent a downfall, and to each of these triangles was placed, at each corner of its base a good, strong castor. We were fortunate in being able to see a portion of the next step in the building. Each side was carefully covered with strong, gray calico, carefully and evenly stretched; and then commenced the process for strengthening this calico, which was done by pasting it over with white paper,—the kind termed by paper-hangers white lining paper. It was cut off in lengths, and pasted with the juncture of the pieces made even laid against one another, and not over-lapping,—the paper-hanger we saw engaged upon this work terming it pimp-pointed; the object of this more difficult work being to avoid the juncture showing if the paper were afterwards painted up. The coatings of paper dry, a fresh covering precisely similar was given, and also a third when the second was dry. The result was, in effect, the building up of a large sheet of cardboard, flat, strong, and durable. The surface was then ready for painting upon either in oil or distemper. Our imformant said he always prefers to lay a ground of solid oil paint, whether the nemmuate surface was to be either in distemper or serpentine flatting.

We may here interpolate an important caution. We have explained that we saw one of these portable screens in course of construction, but its building up differed from what we have described in that one side only was of calico covered and papered, a new background especially required having been hastily stitched over one side. After the second coating of paper had been given its contractile power was so strong that it had completely warped the strong woodwork, curving it to the shape somewhat of a saucer. The result was the background first fastened had to be removed, and the calico covering and papering adopted. We have since learnt that three coats were given before the warp was reduced, and that the drying of the third produced a warping in a contrary direction, which was almost, but not quite, remedied by a third coating of paper upon the side originally covered, it having had two coats only. It is thus obvious that whenever such a screen is covered with paper it must be treated alike on each side at every stage. The immense pull the drying paper can exercise may be conceived when we say the framework was of well-seasoned timber nearly three inches thick.

The particular backgrounds we saw on the occasion of our visit were three in number, and they were wheeled and twisted and turned with the utmost ease and celerity. It would be difficult to imagine a more ready means of utilizing to the full the power of a background. We have often seen in pictures with pictorial surroundings a well-posed figure exceedingly badly arranged in regard to the background, and upon our criticising it received the reply that the subject had fallen in such a pretty position the operator was afraid to disturb her lest he could not repeat it. With a background on castors this would not happen.

We will conclude this portion of our subject by explaining that the built-up screen of calico and cloth we have described was not necessarily to be painted at all. It was always prepared whenever a fresh pictorial background was taken into use, the cardboard backing forming a perfect protection against an awkward finish with the head-rest, the careless crushing of a table against, or in fact any of the numberless accidents to which it is evident the average background has to submit. —*British Journal of Photography.*

WOMAN AND THE CAMERA.

IT is impossible to tell over night who may be attacked by the photographic mania. You may go to sleep meditating peacefully on the prospect of a cool wave, and wake up with thoughts of film rolls and snap-shots and developers, and the alleged ease of pressing the button while a beneficent Providence does all the rest, scurrying like so many microbes through your brain.

The virus works with unbelievable rapidity. In ten minutes you see an iceman who would make a capital character study for a villain. In two hours you are listening eagerly to instructions about focus and exposure. In six hours you are training confidently on a Brighton Beach belle emerging from the water in a wet bathing suit. In twelve hours you are tilting the pan hopefully in an improvised dark room, most likely the bathroom, with blankets pinned over the windows. In twelve hours and five minutes you are examining your first plate nervously by the light of your red lantern. In twelve hours and six minutes you are exclaiming "Fogged!" in accents of wild despair. In twelve hours and ten minutes you are drinking lime juice and water, a la Beau Brummel, and explaining to your interested family that "it's curious what an amount of interest some people take in such things."

Such is the run of an ordinary attack of the disease, acute but brief. Some people have it harder. Mrs. Thomas C. Platt has had it very hard indeed. This lady was one of the first victims of the camera epidemic. It was four years ago, or thereabouts, that she began to use her husband as a model, and immortalized the ex-Senator in all sorts of dignified and undignified positions and occupations. When she got a fine series of views of him loading stones on a barrow, wheeling the barrow, and laying the walks, somebody suggested, " Labor vote, transparencies, use in campaign ! "

" Loads are too small," said Tom Platt, astutely ; " make the workingman grin."

The pictures of immigrants that Mrs. Platt took at the Barge Office and on the Burgunda a month ago, and other steamers more recently, have turned out very nicely. She has been down the bay with a labor inspector and interpreter half a dozen times, and has now a collection of turbanned Syrians and chunky little Italian girls in long earrings, and tall and stalwart Irish girls, and weather-beaten old women from the Welsh mines, and picturesque Norwegians, Hungarians, and representatives of every nation that sends its surplus population to our shores, that is surpassed only by the photographic art gallery of Mrs. Bruce Ismay. The immigrants have shown themselves willing to pose for her, once satisfied she was not aiming at them a new sort of dynamite gun ; but on her last visit a Russian Jew, in a long cloak of the hue of his long gray beard, insisted with so much dignity that " his face should not be stolen," that Mrs. Platt gave her word she would destroy the negative. The leonine old Russian may have been looking forward to the day when his descendants should be the Vanastorbills of the twentieth century, and objected to any record of their origin.

Mrs. Bruce Ismay photographs shipboard life, as a name connected with the Inman line would suggest, and has perpetrated groups that would make the fortune of an artist if he could reproduce in color the faces of some of these new citizens ot our new land. I am told that the Battery under the old regime at Castle Garden fascinated her, and that many of her most unique pictures were obtained by snapshots at the " lately-landed," issuing single file upon the asphalt pavement, looking about them curiously and in wonderment, seated on the park benches looking over the water, or volubly greeting half-Americanized relatives.

The women who photograph do so with all sorts of cameras, from that which is sold for 25 cents, and takes a single picture before the exhaustion of its usefulness through a pin hole instead of a lens, up to outfits costing hundreds of dollars. There is one young woman, and a very graceful and dainty one, whose father has many shekels, and who, when she goes off on a photographic excursion is followed by a negro servant, who carries her tripod, and adjusts it with great flourishing of elbows and conspicuousness of teeth when she has chosen her point of view. When the exposure has been made, with a " I tink we got 'er dat time, suah, missy," he packs up the impedimenta and journeys on. It may be well to add that the young woman, in spite of this pomp and circumstance of photography, takes artistically-composed pictures.

Most women bitten with the craze use the handy little portable cameras, or detectives, but, even without the services of a colored porter, there are a number who manage this tripod variety. Last summer, at one of the Seidl Society's meetings at

Brighton Beach, there was a pretty scene when Mrs. Elizabeth Cady Stanton consented to be placed in position and was photographed by a daughter of Olive Thorne Miller. Mrs. Miller's family seem to be photographic, for she has two daughters who are given to shutting themselves up in dark rooms, but who cannot, with all their "snap-shot" work, get very close views of the sky-feathered songsters that are their mother's especial study.

One of the most successful women photographers left America for Russia a month ago. Mrs. Sergius Schewitsch, who was the beautiful Helene von Racowitza, and whose career has been as romantic as that of any living woman, had the face of one to whom life had brought contentment, but showed a restless energy that did not disdain an outlet in half a dozen fads, photography being the most zealously followed. Her specialty was the portraiture of children, and I remember chatting with her one bright morning in the park, when a white-capped nurse came along with a Kate Greenway urchin that could just toddle. "Will you lend me that baby?" The aristocratic nurse looked up at the tall, blue-eyed blonde woman, and stared. "I only want to take its picture." The stare began to spell itself glare. "Come, little one;" and Mrs. Schewitsch conquered the baby's heart with a smile and an outstretched hand. The nurse had to follow willy-nilly, and for half an hour the woman who played so strange a part in the history of German socialism sat on a rock a little away from the track of the promenaders and studied the baby as it tumbled on the grass, catching it in all sorts of fat-armed and chubby-kneed attitudes.

A scientific photographer is the little dark-skinned Mme. Alice Le Plongeon, who spent so many years in Yucatan with her husband studying the relics of lost races. It is a common enough thing with amateurs to call themselves photographers, though they do nothing more than make the exposure, sending plates or film rolls to the studios of professionals to be developed and printed from. But Mme. Le Plongeon struggled with photography in the depths of tropical wilderness without the amateur's most ordinary conveniences, making pictures with wet plates which she herself prepared, often under the most unfavorable and disheartening conditions. Her work is wonderfully strong and even in its excellence, and to sit in her library—studio, den, by whatever name you choose to call her workshop—is to look round on ruins of temples, monuments, statues, inscriptions, until you anticipate the feelings of Macaulay's New Zealander, who may one day stand on the wreck of London Bridge and speculate on the forgotten civilization of the British Isles. Mme. Le Plongeon makes her own lantern slides from her photographs, and when she lectures, her husband manages the stereopticon, she performing the same service for him at his lectures.

Miss Katherine Weed Barnes goes into amateur photography with whole-souled enthusiasm. Miss Barnes is a niece of Thurlow Weed, and having plenty of money, she does not stint herself in the number or the costly appliances of her cameras. If she wants to find out if she likes a thing, she buys it and tries it. Thus it comes about that she owns twenty-six different photographic cameras, and has fitted up a studio that wins exclamations of admiration and despairing envy from its visitors. Miss Barnes has paved the way for the admission of her sex to photographic societies. In photographic exhibitions she has stood consistently and logically against the absurd "ladies' prizes," maintaining that women exhibitors should not be set off in a class by themselves to compete only with one another, but that men and women should contend without sex distinctions, on the same footing, for the regular prizes. She has lately become one of the editors of the *American Amateur Photographer*.

There is no use mixing much in the company of amateur photographers unless you share their enthusiasm. Get half a dozen of them together and they will begin about "pyro" and "iron developer" and "bromide prints" and "color values," and their language will depart so far from every-day English that you speculate whether they are talking Sanskrit or Choctaw. This is how it happens with some of the women artists who use photography as an adjunct to sketching. Miss Agnes Abbott, for example, who has done many good things both as flower and landscape painter, makes considerable use of the camera to give her details in a minute which it would take her an hour to bring out with pencil. At her country home in summer she sketches a scene in broad outline which strikes her as an attractive subject for a painting, and then photographs this fence corner, or the way that shrub leans over the brook, or a dozen and one other items, which are so many memoranda helps to her memory.

The wife of another artist is a good deal of a photographer. Mr. J. Wells Champney uses the camera, and Mrs. Lizzie Champney uses it quite as successfully. With its help she has preserved interesting records of the growth of her children, picturing them preferably while at play. Instantaneous pictures of children are fascinating photographic recreations. People with detectives take them pushing the lawn-mower, riding pick-a-back on papa's shoulders. A little boy was taken the other evening by a flash-light at his mother's knee. "At prayers," she called it. "Wasn't praying," protested the honest urchin; "just having my picture taken." In photographic families, it may be noted, the children get well used to posing. One sweet-faced little girl is taken every Christmas morning surrounded by her toys. In after years she will have proof positive of the great number and variety of her childhood's playthings.

The Photographic Section of the Brooklyn Institute got up excursions last summer to different points in the suburbs, and these were attended by quite a number of women with their cameras. Miss Mary Newton, whose mother is chairman of the Executive Committee of Sorosis, and who is in her tastes an artist, is one of the enthusiasts, and Mrs. Cornelia Hood, who is now part owner of Miss Mary F. Seymour's *Business Woman's Journal*, is another.

The detective is becoming quite a useful article of the newspaper woman's stock in trade. Miss Elizabeth Bisland is a clever photographer, and Miss Eta Thackeray, who is a relative of the novelist, has done considerable work with the camera. Miss Alice Stone Blackwell has photographic tastes, though she indulges in them for amusement, and not for the benefit of the *Woman's Journal.*

Photography seems to have an especial attraction for actresses. It is one of Clara Morris's hobbies, and her fine horses are her favorite subjects. Ada Rehan got a camera this spring, though how much she is doing with it I do not know. She ought to find plenty of picture material and plenty of people of congenial tastes in London.

A woman to be sympathized with is Mrs. Cleveland. She is rather given to hobbies, but is shy of indulging her tastes, because every thing she does brings on her so many eyes. She is fond of the violin, but after her music mistress was inter-viewed her enthusiasm appreciably declined. She is fond of the camera, but does not like to be seen with one in her hand. Still she has made a fair number of snapshots during the past summer at Marion. A sense of the humorous crops out in her choice of subjects.

A taste for the camera once fully developed, there is no telling where it will lead a person. It will take you to Alaska to picture Indians, as it did Mrs. Platt, or through the Vale of Cashmere, famed for many things, but more especially for shawls, as did a woman who has wandered twice around the globe in search of "material." It will take you up into the Catskills, where photography is a regular sport with the Onteora colony, or to Asbury Park, where the confirmed photographer has no respect for the cloth, but takes an exhorter in full tide of admonition. It may even take you, as it did my nearest friend, to the penitentiary, where she photographed a poor fellow in the prison dentist's chair in the act of having a tooth extracted. Great is photography. Its charms are many, and its claims, when it has its grip on you, inexorable.—*Eliza Putnam Heaton, in the Brooklyn Times.*

PHOTOGRAPHY TO THE RESCUE.—A Museum of Architecture is to be established at King's College. It is not stated whether it is to consist of models of light and air cases, and examples of schedules of dilapidations and bills of quantities; but we shall shortly be hearing, I suppose. In any case, I fear much good is improbable. The dead-and-alive state of things at the Tufton Street Institution should be enough to frighten anyone from establishing another Architectural Museum. If a King's College student wants to study architecture, he can find plenty of examples of different classes of work within a short distance of Somerset House. Pictures and casts are of little educational value as compared with actual buildings; and in constructional matters, any earnest student, with his eyes open and wits about him, can learn more in an hour's walk through London streets than a day in a museum of examples. Models are mere toys. The best thing that could be done with the proposed museum would be to cram it full of the very finest photographs obtainable, of buildings from all parts of the world, arranged with regard to style and date. This would be in accord with a precept of Mr. Ruskin, which I call to mind, to the effect that if a student loves architecture he will study much from photographs of it. A well-collected, well-arranged exhibition of the nature would be the best kind of architectural "museum." It would not only be useful for educational purposes in connection with the college lectures, but would be interesting and instructive, and useful for reference to all architects and students. Photography has reached a high pitch of excellence, and it is the best medium for the illustration of works of architecture. An architectural museum, I would repeat, is something which cannot exist; except in the city thoroughfares and county roadways. My advice to the promoters of the proposed "museum" at King's College is to rely upon photographs, and in so doing they have ample scope for the formation of a most interesting and valuable collection, which could be so arranged as to greatly facilitate the student's acquiring a clear knowledge of architectural history, which, after all, is the main thing required to be taught to a probationer for an architect's calling.—*Building News.*

AMATEUR EXPERIENCES. IX.

MR. EDITOR:

I AM in serious trouble once more. I am a member of the Leopardville Camera Club no longer. I was forced to resign by request, and it is all the JOURNAL'S fault. No more will I be able to attend the monthly meetings of our aristocratic local camera club; neither will my blue prints be handed around and admired; and, worse than all, I cannot borrow chemicals or parts of an outfit as heretofore. It came about as follows: At the last regular meeting, after the club was called to order, our vice-president, the worthy deacon, arose to a "question of privilege," when he called the attention of the president and members of the club to my letter in the AMERICAN JOURNAL OF PHOTOGRAPHY for November, which he claimed not only cast ridicule upon him, but placed the club in a false position before the country. He elaborated considerably upon the matter, and stated that in view of all the facts it was his private opinion, publicly expressed, that I was the author of the contemptible trick which had been played upon him at the last meeting, and which had been scattered broadcast over the country through the medium of the AMERICAN JOURNAL OF PHOTOGRAPHY; but as he had always been taught to temper justice with mercy, he did not want to be my judge, but at the same time thought the club should take some action in the premises. Mr. Dropshutter, a comparatively new member of the club, then arose and offered a resolution, viz.: "In view of all the facts, J. Focus Snappschotte, corresponding secretary of the club, be requested to present his resignation forthwith." Well, what under the sun was I to do under the circumstances? I had to resign, or the club would have resigned me. It is always thus—when a man wants a friend he never has one. So it was with me. I resigned, and it was received without a dissenting vote. I lost no time in gathering up my traps, and slipped out in the night air,—photographically speaking, homeless and forsaken. This, however, was not the worst of it. Misfortune never comes alone. On the following Saturday there was a column account of the trouble in our local weekly, *The Cabbagetown Bugle and Farmers'-Alliance Vindicator.* It was the leader, and rejoiced in the following double-leaded head-lines:

THE DEACON'S VILIFIER FOCUSED.
DROPSHUTTER ACTION TAKEN.
A MEMBER OF THE LEOPARDVILLE CAMERA CLUB EXPELLED.
EXPOSURE OF AN AMATEUR PHOTOGRAPHER.
HOW HE DEVELOPED IN LEOPARDVILLE.
HOW HE WAS FIXED BY AN OUTRAGED CLUB.
HIS DARK DOINGS BY THE AID OF A RUBY LANTERN.
THE FOG OF REMORSE.
RUMORS OF SUICIDE IN A HYPO BATH.

You can imagine the rest. It made a column. I have since received notice to look around for another boarding house; my friends ignore me; even the village children avoid me. Now, Mr. Editor, what am I to do? I have been advised to sue the paper for libel, but what good would that do me? The damage is done. Besides, the paper is printed on patent insides and is furnished gratis, the press and fonts are covered by a chattel mortgage held by the village bank, while the publisher, editor, compositor, and printer, all in one, lives in his office, and ekes out a hand-to-mouth existence from the few local ads. Under these circumstances, what could I recover? Besides, I am an outsider, and as a natural consequence all of my associates are against me, and there is no use of looking for a vindication. I shall accept the situation and try to make the best of it. If you know any one who wants to buy a 4 x 5 Waterbury outfit, please let me know it; I will sell out cheap. At the same time, I trust that my severance from the Leopardville Camera Club will not have any effect with you to my detriment. If there is no objection I shall continue to write you an occasional letter; it may not always be a photographic one, but if I can catch any of my late compeers away from home, with the ridiculous side up, I will let you know it. J. Focus Snappschotte.

P. S.—Enclosed please find $2.00, my subscription for next year.

A REMARKABLE PICTURE.

PANORAMIC VIEW OF THE BATTLELIELD OF GETTYSBURG.

THERE has just been placed on exhibition in one of the windows of the store of Messrs. Porter & Coates, at Ninth and Chestnut Streets, a remarkable photograph of the battlefield of Gettysburg, which was made by Mr. William H. Rau, of this city, and which is to be sent to France to the Comte de Paris. The picture is in the nature of a panorama from the summit of Little Round Top, and while not the "largest direct photograph ever taken," is without doubt the largest of its kind ever made in this country, and perhaps anywhere. The remarkable feature of the photograph is the extent of the panorama, the print being made from a single negative, and the view embracing an angle of from 165 to 170 degrees.

The photograph, which is 18 inches wide by 48 inches long, was made by Mr. Rau with a camera constructed in this city upon the principle of Moissard's instrument, a French invention which has been successfully employed (though on a smaller scale) in securing panoramas of the city of Paris. Though covering such an extreme angle of view, the photograph is entirely free from distortion,—a performance the remarkable nature of which will be appreciated by those who know the usual effect of using an extremely wide-angle lens upon a large plate. In Mr. Rau's camera a lens of long focus (15 inches) was employed, and the extreme angle of view is secured by using a flexible film bent into the shape of a half cylinder, and by revolving the lens upon a pivot so accurately adjusted that the sensitive surface of the film is in the focus of the lens, no matter what its position. The rays o light passing through the lens are so controlled by a system of diaphragms that only a very small section of the film is illuminated at a time, and the exposure is made by revolving the lens on its optical centre from one extreme of the view to the other. The adjustment is so accurate that in cases where a longer exposure is needed, as for instance where there are dark masses of foliage to be photographed, or where the sky is overcast, the lens can be moved back and forward several times, giving as many successive exposures, without any "doubling" of the lines in the negatives. The holders or "dark slides" in which the sensitive films are placed are necessarily flexible,—a requisite which added greatly to the difficulty of making the camera. These alone represented an outlay of several hundred dollars. The sensitive films required had to be specially made for Mr. Rau, the largest sizes regularly supplied by the manufacturers being only about half as large. The films were furnished and especially coated by John Carbutt, the Wayne Junction dry-plate manufacturer. In addition to these special films Mr. Rau was obliged to purchase a complete outfit of developing dishes, etc., as well as paper for the production of the positives, and the cards upon which to mount the finished prints, the sizes required being far larger than any which are to be found in the regular photographic supply stocks.

The panorama of the Centennial grounds, made by Mr. F. Gutekunst in 1876, while much larger, was made in seven different sections, and the labor of printing and joining these different sections required as much if not greater skill that the making of the negatives. Nearly all panoramas heretofore made by means of the camera have been produced in this way, and while the matching of the different sections is easily accomplished, so far as the distant portions are concerned, it is practically impossible to match the foregrounds so that the junctures are invisible.

THE following notice appeared in the New Haven (Conn.) *Journal and Courier:* —A NOTABLE DISCOVERY.—If the truth is told, Mr. Frederick E. Ives, of Philadelphia, has discovered a way to reproduce natural colors in a photograph. Mr. Ives has gained his success by striking out in a new path. He has conducted his investigations upon lines indicated by the discovery, within a comparatively few years, that the same effects of color may be obtained from widely different causes. In other words, the modern theory of light distinguishes between spectrum colors and primary color sensations. There are three primary color sensations,—red, green, and blue,—and the varying combination of these produces all the infinite variety of color effects known to the eye. Mr. Ives obtains three photographic negatives of the same object in such a way, according to orthochromatic methods, that each represents in its light and shade the degree to which the object excites a single primary color sensation. From these negatives lantern-slide positives are made, and the three images are projected from three separate lenses simultaneously upon a screen so that they are exactly superimposed; one in red light, another in green light, and another in blue-violet light. In this way the various lights select from the corresponding photographs the different colors and values, so that the image upon the screen corresponds almost exactly with the original.

This discovery will add much to the usefulness of photography. It has long been eagerly sought.

DYNAMITE BLAST PHOTOGRAPHED.—A daring feat in photography was performed last week by Dr. George H. Bailey, of Boston. He succeeded in getting a fine negative of a blast of a ledge near Savin Hill, one of the largest on record, in which two hundred and fifty pounds of dynamite were used. He did it at the risk of being crushed by some huge rock, and moved himself and camera out of the way just as a boulder several tons in weight was about to land dangerously near him. The picture was taken just as the dust and stones had reached their highest elevation, and is as interesting as it is rare.—*Photo. Times.*

EDITORIAL.

THE editor of a publication not yet out of its swaddling clothes, claiming to be "devoted to the advancement of artistic and scientific photography," has seen fit to make a somewhat personal attack upon the editor of the AMERICAN JOURNAL OF PHOTOGRAPHY, in connection with the subject of heliochromy. It is not the habit of the editor of this journal to enter into personalities, and we should have let the present instance go unnoticed had we not feared that the statement separately might find its way into some photographic journal of standing or widespread circulation, and thus mislead the public. As a matter of fact, we have already virtually disposed of the whole matter in the last number of our journal, p. 313, et seq.

The facts of the controversy are that two years ago Mr. Fred. E. Ives, of this city, in a paper read before the Franklin Institute, stated a new principle in composite heliochromy, for which he has recently been granted a patent. Mr. Ives's invention was described at the time (November, 1888) in the Philadelphia *Ledger* and the AMERICAN JOURNAL OF PHOTOGRAPHY, Vol., IX., p. 322, and his paper was printed in the Journal of the Franklin Institute, Vol. XCVII., p. 54, and reprinted in several photographic journals in this country and in Europe. A few months ago Mr. E. Bierstadt, of New York, showed some results obtained by a similar process, and in our September number, p. 252, we suggested that perhaps he had taken advantage of Mr. Ives's invention published two years ago. In reply to this remark comes the answer from Mr. Bierstadt that his negatives were made *three years* before Mr. Ives's "publication was issued" (that would be about five years ago), and also an attempt to make it appear that they were made according to his conception of the requirements of the theory of Young, Helmholtz, and Maxwell. We here give a few parallel quotations, which we think will make it easy for the unprejudiced reader to grasp the situation at a glance :

DUCOS DU HAURON, IN 1868.	E. BIERSTADT, IN 1890.
"My procedure rests on the principle that the simple colors are limited to three, the red, the yellow, and the blue."—French patent specification, November 23, 1868, Class XVII., Sec. 3, Serial No. 83,061. [This is according to Sir David Brewster's theory of color.]	"The method I have investigated mostly is a method that is about twenty years old. I think it was suggested by Ducos du Hauron, practiced by him and patented by him. * * The primary colors * * made to photograph only one at a time, red, yellow and blue. * * * It was done 20 years ago, and is the only method I practice in getting photographs in colors."—*Anthony's Bulletin*, September 27, 1890, p. 575.
"Notwithstanding the fundamental principle of the triple proofs, there may be	"I send herewith a copy of a painting done in colors on the principle of the three primary colors as suggested by Ducos du Hauron and others. * * * I think I have discovered the point where others have heretofore failed. This pic-

circumstances where a fourth negative, a fourth monochrome would constitute real progress,—a black monochrome, or a shade approaching black, destined to be superposed on the other monochromes."—English patent, July 22, 1876, No. 2973, p. 15.

F. E. IVES, IN 1888–89.

"Pictures which do truly show the light and shade and all the colors of the object photographed can be produced by a process * * which is not based upon Brewster's theory of color, but upon that of Young, Helmholtz, and Maxwell." * * —"A New Principle in Heliochromy,' p. 3, January, 1889.

"I finally adopted reproduction colors which call for negatives of the spectrum showing curves of intensity approximating to the curves in Maxwell's diagram, illustrating the action of the spectrum upon the different sets of nerve fibrils."—Journal of the Franklin Institute, January, 1889, p. 57.

"This principle may be conveniently stated as that of producing sets of negatives by the action of light rays in proportion as they affect the sets of nerve fibrils in the eye, and images or prints from such negatives with colors which represent the primary color sensations." —"A New Principle in Heliochromy, p. 4.

ture is copied from the original painting by means of four negatives, representing the red, blue, and yellow colors, and a neutral tint."—*Photo. Globe*, p. 147, July, 1890.

"My method differs from others simply in the addition of a fourth plate, which I think gives the true value to the shadows, because all our colors are colors only by comparison."—*Anthony's Bulletin*, September 27, 1890, p. 575.

E. BIERSTADT.

[After Mr. Ives's new principles had been indorsed by recognized authorities.]

"I work exactly on the theory that I profess to believe in, and have done so ever since 1877. * * * I believe in Young's theory of colored light, which is that the three primary colors of light are orange, red, green, and violet, just as stated by Young, Helmholtz, and Maxwell."—*Photo. Globe*, p. 234, November, 1890.

[This is Mr. Bierstadt's *first* reference to "red, green, and violet," and to the name of either Young, Helmholtz, or Maxwell. It is also a misstatement of the theory referred to, which recognizes no such thing as "colored light," but only that light waves produce color sensations, which is something quite different.]

"As to the fourth plate in neutral color, I must say it *can* be used to neutralize" [he should have said *cover up*] "imperfections, but it is not intended for that exclusively."—*Photo Globe*, p. 235, November, 1890.

As may be seen, Mr. Bierstadt expressly stated, in September, that the method of composite heliochromy practiced by him was the same as "was done twenty years ago" [by du Hauron], "except in the addition of a fourth plate." The method of du Hauron, as published over twenty years ago, was specifically based upon the theory that the spectrum is made up of three primary color rays—red, yellow, and blue—and mixtures thereof. Mr. Bierstadt also says: "The primary colors, * * * made to photograph only one at a time, red, yellow, blue," etc. We characterized this as a false theory, which it is; and now Mr. Bierstadt changes his base, and asserts that the negatives which, previous to November of this year, he repeatedly stated were made according to the twenty-year-old principle, were really made according to his conception of the requirement of the theory of Young, Helmholtz, and Maxwell, and that that has been his idea since 1877. Now, in all candor, in view of all the facts, which statement are we to believe, if either?

In conclusion we will state that, so far as our knowledge goes, not a single photographic publication has endorsed Mr. Bierstadt's claims or system, outside of his own medium.

J. F. SACHSE.

BACKGROUND PAINT.—We reprint the following excellent formula from the *Journal of the Photographic Society of Sweden*:

Starch	4 ozs.
Water	12 "

Boil the above well, till it thickens. Then with a stiff brush cover the calico which has been stretched upon a frame, the corners braced with cross-pieces to keep the frame in proper shape.

After the starch has been applied, the following makes an excellent coloring:

Common whiting	15 ozs.
Powdered glue	8 '
Treacle	4 "
Water	3 qts.

When thoroughly mixed, add

Lampblack	1 ¼ ozs.
Ultramarine	¾ oz.
Venetian red	¾ "

Put in the fire until hot, brush over the calico carefully with a broad, flat brush (white-wash brush).

TO DETERMINE THE CONCENTRATION OF A BATH.—At a meeting of the Photographic Society of Liège, Professor de Konick advocated the use, for determining the strength of a bath, of the densimetric process, based upon specific gravity. This is especially obtained by the densimeter. Ordinarily the density increases with the concentration (nitrate of silver, potassic bromide), or diminishes with it (ammonia, alcohol). Acetic acid presents a remarkable exception: the density increases with the strength up to 1.075 (acid from 75 to 82 per cent.), and diminishes afterward, if the concentration increases. This acid at 95 per cent. has the same density as that at 56 per cent. In speaking of percentage, M. de Konick said that it would be very desirable to have an understanding in regard to the compositions of solutions. Thus, when it is said that a solution is at 10 per cent., it is generally understood by this that there is 10 of the body dissolved for 100 of the vehicle; when, rationally, this should be 10 for 90. This may give rise to perplexity, when, for example, in a work on photography, we find a formula of this kind:

A. Carbonate of Potash	25 per cent.
B. Sodic Sulphite	30 "

For solutions at 2 or 3 per cent., this is of little importance, but for concentrated solutions the confusion may prove regretable.

M. de Konick is the author of a little work which he has styled "Generalities on the Quantities in Formulas by the Use of Standard Liquids."—*Bulletin Belge.*

STEREOSCOPIC VIEWS IN THE LANTERN.—Dr. Schobrens projected, before the Antwerp Section of the Belgian Photographic Association, a series of stereoscopic views with the aid of two lanterns placed in juxtaposition. Each lantern received the half of a stereoscopic view and a colored glass, red for the view on the right, for example, and green for the view on the left. The two views being superposed in the screen, it sufficed to look at them through a pair of spectacles having red and green glasses (in this case red for the right eye, and green for the left eye), to perceive the *non-colored* image with as much relief as in the stereoscope. This effect is produced because each eye only sees one image, as in the ordinary stereoscope.—*Bulletin de l'Association Francaise de Photographie.*

THE first lecture for the Franklin Institute, season of 1891, will be delivered January 5th by John Carbutt. Subject: "Some New Applications of Photography."

RECENT PATENTS.

THE following list of patents relating to the photographic interests granted by the U. S. Patent Office during the month of November, 1890, is specially reported by Franklin H. Hough, solicitor of American and Foreign Patents, 925 F Street, N. W., Washington, D. C., who will furnish copies of patents for 25 cents each.

ISSUE OF NOVEMBER 4TH, 1890.

439,804. Photographic camera, W. H. Lewis, Huntingdon, Pa., assignor to E. & H. T. Anthony, New York City, N. Y.

439,650. Roll-holder for camera, W. H. Fuller, assignor to Scovill & Adams Co., New York, N. Y.

439,651. Roll-holder, W. H. Fuller, Passaic, N. J., assignor to Scovill & Adams Co., New York, N. Y.

439,999. Photographic flash-light diffuser, J. S. Bridges, Baltimore, Md.

439,808. Photographic plate-holder, R. A. Anthony, assignor to E. & H. T. Anthony, New York, N. Y.

ISSUE OF NOVEMBER 11TH, 1890.

440,399. Printing-frame, W. Eason, Racine, Wis.

440,228. Camera, G. H. Hurlburt, Belvidere, Ill.

440,427. Photographic camera, H. J. Gray, London, England.

440,325. Flush-washer for photographic purposes, G. H. Richards, assignor of one-half to W. Nuneviller, Philadelphia, Pa.

440,583. Photographic shutter, E. B. Barker, Newark, N. J.

440,137. Photographic shutter, J. B. Church, Washington, D. C., assignor to Eastman Dry Plate and Film Co., Rochester, N. Y.

ISSUE OF NOVEMBER 18TH, 1890.

441,018. Camera, F. Nowlan, London, England.

441,064. Photographic apparatus pocket, A. Goldschmidt, Zurich, Switzerland.

ISSUE OF NOVEMBER 25TH, 1890.

441,158. Photographic apparatus. Flash-light, W. H. Harbeck, Toledo, Ohio.

LITERARY AND BUSINESS NOTES.

ANNOUNCEMENT.

☞WE again call the attention of our patrons to the fact that with the close of the current volume the price of the AMERICAN JOURNAL OF PHOTOGRAPHY will be advanced to twenty-five cents per copy, or two dollars per year if paid in advance. Commencing with No. 1 of Vol. XII., January, 1891, the JOURNAL will be presented in an improved form. We expect to present several photographic surprises to our readers during the coming year. We will further say that we will continue to make it our aim that the AMERICAN JOURNAL OF PHOTOGRAPHY shall be indispensable to every photographer,—amateur, professional, or theorist.

WE note in our advertising pages the advent of a new magazine camera of novel construction. This instrument is quite small, the 4x5 which we have inspected being only 6x7x9 inches. It is loaded with fifty film carriers or glass plates, or any less number. One straight, simple motion brings one of these in position, and a reversed movement returns it. The shutter is always set, and a pressure of the thumb makes the exposure. The instrument is constructed in the most substantial manner, and finished equal to any on the market. It is expected that this new candidate for public favor will meet the needs of the large class of amateurs and tourists who prefer dry-plates or films of any particular brand, and object to the size, weight, and intricacy of the magazine cameras which have heretofore been offered to the public. It is expected that a limited number of these instruments will be ready for sale by December 10th inst.

AN ENTERPRISE IN ADVERTISING.—Many of our general readers have doubtless been impressed with the extensive advertising of *The Ladies' Home Journal.* One can hardly pick up a newspaper or magazine without seeing the strikingly-displayed advertisement of this remarkable magazine. Realizing that newspaper and periodical space is valuable, and that it must cost a "mint of money" to so thoroughly present the announcement to "all creation," inquiry was made of a firm of advertising agents of Philadelphia for some of the facts. In reply they stated that they had already expended $75,000 in advertising the journal in question, and that by the close of 1890 the amount will reach, if it does not exceed, $200,000. The advertisements have appeared in about 4,000 papers within the past three months in the States of Ohio, Indiana, Illinois, Iowa, Michigan, Wisconsin, and Minnesota. To do this has necessitated the writing of 15,000 letters, and the larger part of a force of 100 clerks has been engaged. If all the electrotypes used in *The Ladies' Home Journal* advertisements since the first of January could be laid flat on the ground, they would make a solid walk three feet wide and nearly two miles long. If laid flat, piled one upon another, they would make a tower 4 x 8 feet, nearly 1,700 feet high, which is nearly four times the height of the highest tower in the world. The *Journal* is published by the Curtis Publishing Company, Philadelphia, Pa.

AN amateur photographer of the Listener's acquaintance tells him that it is next to impossible to get a picture from the photographic printers under six weeks, so utterly unprecedented has been the descent of amateurs upon the printers with the negatives which represent their vacation photographing. Certainly there have never been so many amateur photographers abroad in the land as the present season, and, as of course only a few of this immense army of photographers print from their own negatives, the printing has to be done after they come back to town, and they all want it done at once. Result, a fearful congestion of negatives at the printers, and hope deferred that maketh the heart sick on the part of the enthusiastic amateurs. By the way, a new and, so far, lucrative business for women has been opened up by this craze of everybody to take photographs. Printing photographs from negatives is an occupation for which women, with their naturally quick eyes and deft fingers, are especially adapted; and some few of them have worked into it very well. The Listener knows of one young woman who put $2000 in the bank last year, representing the clear profits of one year's work in printing photographs. And evidently her work this year is on much larger scale than last year. Women's work in this branch is acknowledged by photographic experts to be superior to that done by men. But perhaps it will be with this business as with so many others; the success of some will encourage others to enter it, and at last it will be overcrowded and precarious. But even then then there will be "room at the top" as usual.—*Boston Transcript.*

A PHOTOGRAPHER who snapped a shot at a witness during the Tipperary trials has been sent to prison for contempt. He pressed the button—the Judge did the rest.

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